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IRON TRADE REVIEW
STEEL

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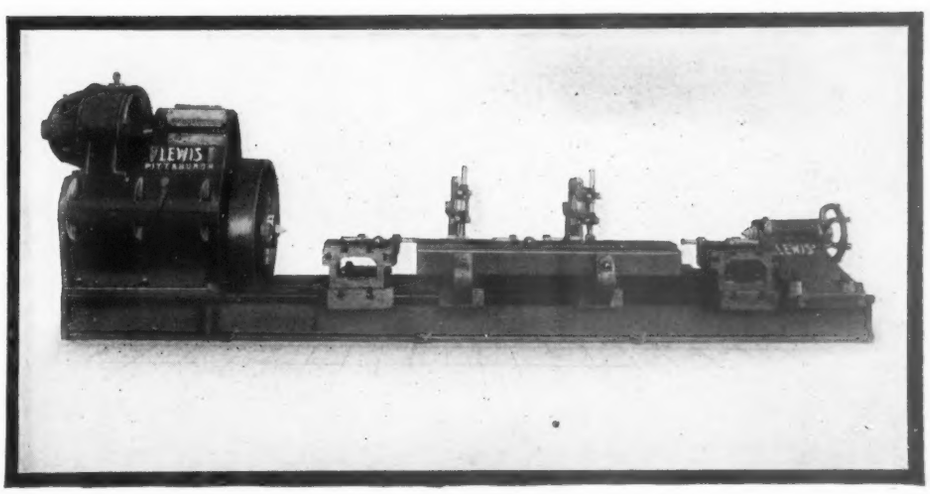
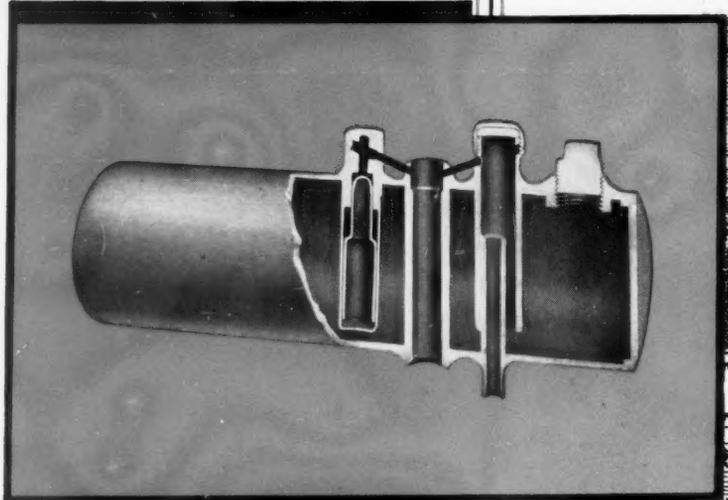
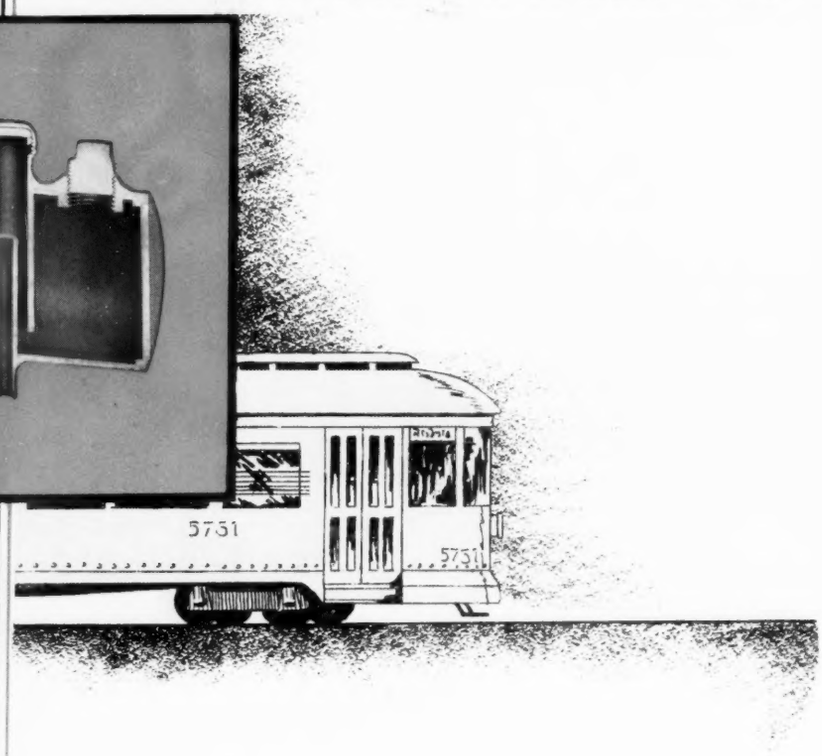


Lewis Foundry & Machine Co., Pittsburgh, Pa.

CROSBY

SHEET METAL STAMPINGS





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STEEL

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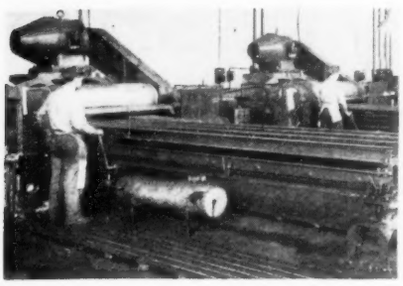

Polishes Corrosion-Resisting Sheets on Production Basis. Page 43.

THIS WEEK:

SCANNING the Technology of Steel, the new department in this publication, is proving valuable to many readers, judging from comments. It saves their time by condensing and classifying the best of the latest technical literature, giving them an insight to the substance of articles, and where they may be found. It reveals information with a minimum of effort; is not intended as a substitute for the originals, but as a guide. In this issue the department begins on page 61.

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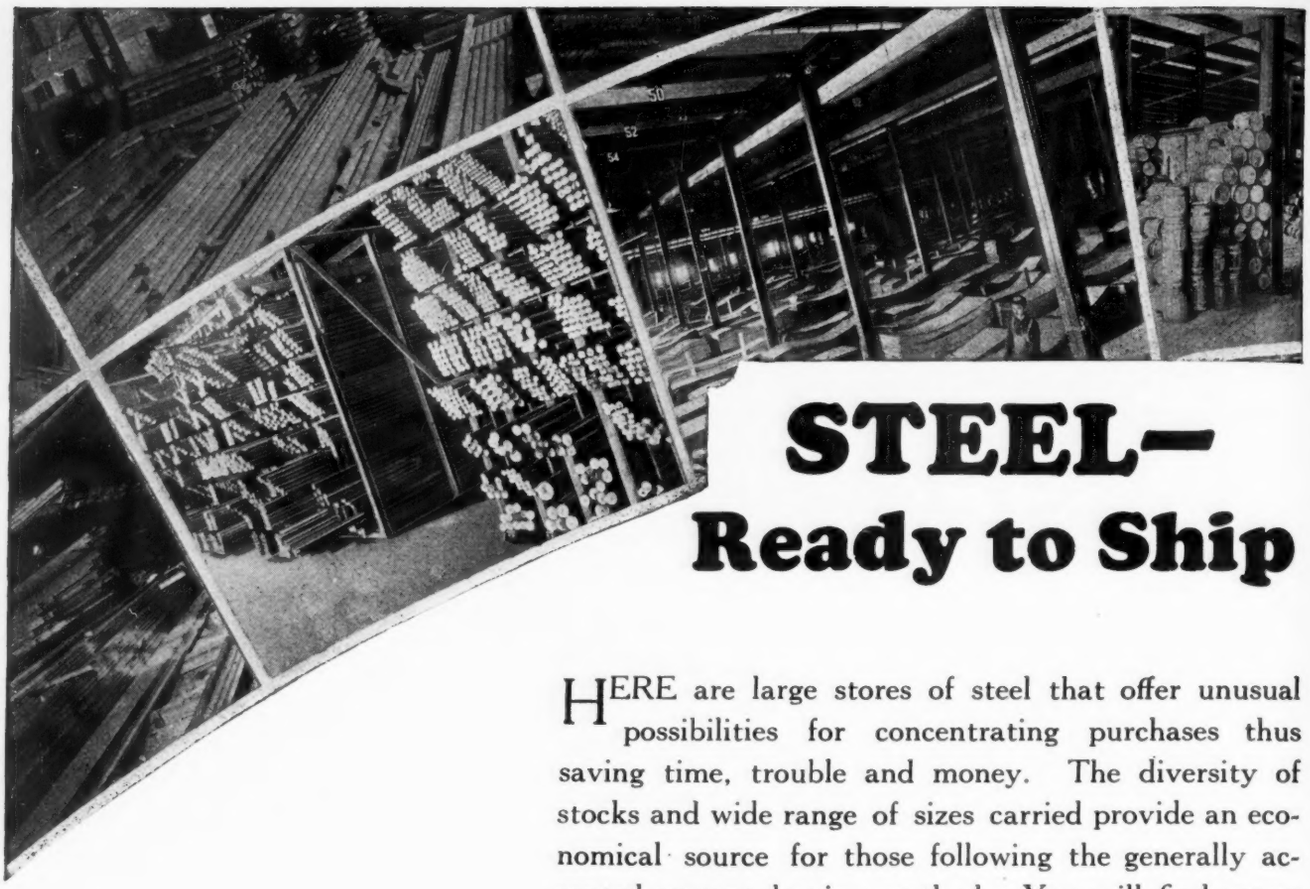

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Volume 87 Number 4

IRON TRADE REVIEW
STEEL

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

CAN any man be worth $1,650,000 a year to his company? A question thinking executives and stockholders everywhere are asking, to say nothing of the acrid observations of thousands of wives as they contrast their husbands' incomes with the salary and bonus received last year by E. G. Grace, president of Bethlehem. This disclosure, in the Bethlehem-Sheet & Tube merger trial, may have far reaching effect. It will be discussed for months, and will direct close scrutiny to the entire executive bonus system. It provides ammunition for radical leaders and legislators and may stiffen the resistance of steel buyers to higher prices. Page 23.

They Will Be Noise-Proof, at Least

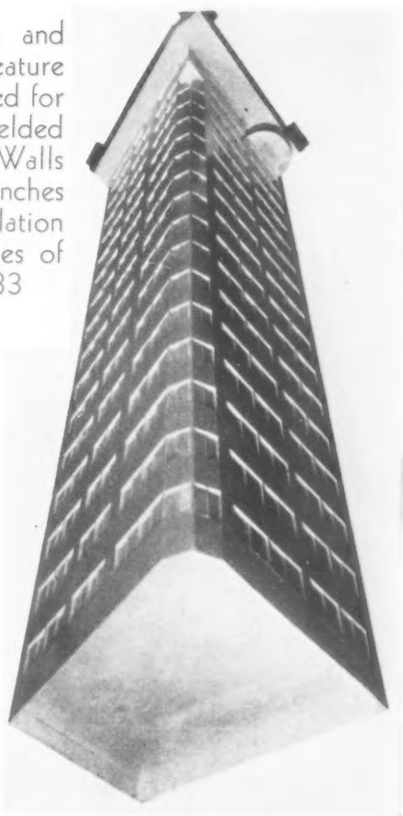
Chicago is a bit sensitive about having the first steel battledeck floor apartment house, but what other inference is to be drawn? Aluminum sheets clamped to a welded structural steel frame and backed by 2-inch tile will give the walls an insulation value equal to 36 inches of brick. Floors will be ¼-inch plates. Not only will the time and cost of construction be reduced, but there also will be 14 per cent more rentable space. Page 33.

Railroad crossings smoother than highways and almost as safe are promised by a western manufacturer who is marketing an all-steel crossing unit of ¼-inch plates riveted to channels and zees. It can be installed between trains. Page 47.

A boiler shop and a mental case hospital for war veterans, of all opposites, were to be built on adjacent land in eastern Pennsylvania. The courts held there were no legal barriers to the construction of the shop, but were noncommittal concerning any possible disturbance to the hospital when the shop was placed in operation. So the proposed owners wisely, and considerately, located their project elsewhere. Page 25.

Relief For Steel Is Just as Reasonable

Agricultural experts at Washington point significantly to the decline of farm products prices to the lowest level since 1922. Well, finished steel also has not been so cheap in eight years, but there are no special sessions of congress to help steel producers and no federal board buying up surplus production. It may or may not be significant, but while finished steel has surrendered all its rise since



Battledeck floors and aluminum walls feature a building planned for Chicago, all of welded metal and glass. Walls will be 3½ inches thick with insulation equaling 36 inches of brick. Page 33

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1922, pig iron and scrap have liquidated only their 1929 advances. Page 25.

Watch cases to ornamental caps for skyscrapers is the range of applications for polished corrosion-resisting steel sheets of the 18-8 classification. To meet the increasing demand for sheets, a maker recently placed in operation a polishing plant with a capacity of 30,000 square feet, or about 30 tons, daily. Page 43.

Now Shakespeare's Place Is Assured

Shakespeare's evaluation of a name is shared by the federal trade commission. Two St. Louis business men, it appears, have been trading under firm names simulating long-established companies. Their Illinois Steel Products Co. suggests the Illinois Steel Co., the commission fears, and their Allegheny Tube & Steel Co. the Allegheny Steel Co. A victory for the commission will compel organizers to be original and will increase the property value of a name. Page 25.

A drawback to corrosion-resisting steels of the high chromium compositions has been difficulty in machining. Recently a manufacturer of this type of steel discovered that an addition of about 0.40 per cent zirconium sulphide would permit free machining comparable to that of commercial screw stock. Grinding and polishing also are facilitated. Page 50.

There's a new spirit in the steel markets this week, a feeling that the industry has passed the worst of the midsummer dip and will slowly begin to climb out. Extremely low prices structural steel are enticing contracts. This week the automotive industry should begin to specify material for delivery early next month, when its vacations are over. A 58,600-ton inquiry for rails, the largest in months, is before mills. Few hazard a prediction on the long pull, but for the fall all are agreed that some improvement is in store. Page 71.

Britain Fearful as Entente Loses Grip

A counter-irritant for steelmakers is the fact that, slack as are markets in the United States they are worse abroad. Gradually the continental steel entente, repository of high hopes, is losing its grip, now controlling only semifinished and structural steel and wire rods. At a free market on the Continent the British industry looks askance. Page 98.

Although a thousand miles nearer the Pacific coast than the eastern seaboard, midcontinent steelmakers have been effectually shut out from the coast markets for a number of years by high freight rates. Now, however, the combination of a lower rail rate to Gulf ports plus a water haul through the Panama canal puts Mississippi valley mills on a parity with their eastern competitors. Page 92.

The property of zinc to alloy with iron is one of the factors contributing to the destruction of steel galvanizing kettles. This action increases as the temperature rises and the steel becomes embrittled as the alloying continues. Another factor in the disintegration of the pot is the rapid expansion or swelling action as the zinc combines with the iron. Page 56.

Transportation is the business of America. Not the inventor either of steam or internal combustion means of locomotion, their production and utilization here lead the world. Automobile manufacturers and freight car builders are close rivals for the leadership in steel consumption. The former have established many foreign plants in the past year. Meanwhile, American car builders also are invading foreign markets. Page 32.

How Wide Is Valley of Depression?

Second quarter financial reports of iron and steel producers and principal consumers do not make particularly happy reading, but many believe they reveal business at its worst. If the bottom of the valley has been reached then the question is, How far to the other side? Wall Street, prideful that it discounts business six months ahead, has been cautiously bullish recently. Page 26.

Modern weld testers have only to cultivate a professional air and exchange jumpers for cutaways to be mistaken for a physician. Approaching the patient, which may be welded plates, pipes, staybolts, pressure vessels or structural joints, the tester applies his stethoscope, then taps gently with a hammer. If the resulting vibration, detected by the stethoscope, has a characteristic reedy, high-pitch initial note, a lack of fusion is indicated. Page 46.

Reveal Bethlehem Bonuses; Grace's $1,623,753 in 1929

BONUS payments to Eugene G. Grace as president of the Bethlehem Steel Corp. in 1929 amounted to $1,623,753, Mr. Grace testified in the trial of the Bethlehem-Youngstown Sheet & Tube merger case in Youngstown, O. The total of bonus payments received by him from Jan. 1, 1925, to June 30, 1930, he said was $5,431,684. In 1925 he received $700,473; in 1926 $852,160; 1927 $721,885; 1928 $831,445, and in the first six months of 1930 $701,968.

These payments were independent of Mr. Grace's salary which he testified is now $12,000 a year. Mr. Grace was repeatedly asked by Luther Day, counsel for the anti-merger group, if his salary is not $12,500 a month, but he denied that it was, holding to the $12,000-a-year figure which he gave last week.

Further evidence introduced Tuesday showed that six Bethlehem vice presidents drew a total of $1,432,032 in bonuses in 1929, and $517,775 in the first six months of 1930. Payments were listed as follows:

Vice President	1929 Bonus	6-Mos. 1930
Q. Bent	$378,664	$163,701
C. A. Buck	378,664	163,701
J. M. Cross	110,077	47,588
H. E. Lewis	375,784	61,146
R. E. McMath	134,538	58,162
J. H. Ward	54,305	23,477

Mr. Lewis retired in February this year.

Counsel for the anti-merger group fought determinedly for several days in Judge David G. Jenkins' court to get into the record Mr. Grace's testimony on his bonus compensation. Their petition charged that Mr. Grace received an excessive payment for his services, that Sheet & Tube directors did not know it, or withheld the information, and that this constituted a "fraud" against Sheet & Tube stockholders.

The point was considered so "vital" to the case, as Judge Jenkins put it, that he adjourned court last Friday noon so that he might consider the issue over the week-end. When court resumed Monday he compelled Mr. Grace to answer Mr. Day's questions.

After Mr. Grace revealed his compensation Judge Jenkins recalled to the witness stand Frank Purnell, president, Sheet & Tube company.

"Acting as my own counsel I wish to ask Mr. Purnell some questions," he said.

When Mr. Purnell was on the stand last week he had two financial reports, one which he had worked out for use in the merger negotiations, and the other submitted by Price, Waterhouse & Co., which Mr. Purnell said he had with him when directors approved the merger March 12.

Judge Jenkins handed these exhibits to Mr. Purnell and asked him if they contained anything about the bonus payments to Grace or to Bethlehem officials. Mr. Purnell replied that they did not.

Directors in Dark

"Do I understand that directors of the Youngstown Sheet & Tube Co. in acting on this merger had no figures at all on the bonus plan?" asked Judge Jenkins.

"No figures at all of the bonus plan; no, sir," replied Mr. Purnell.

Counsel for the anti-merger group considered this one of the strongest points in the case, but representatives of Bethlehem and Sheet & Tube argued that it made no difference what compensation was paid to Bethlehem executives.

Judge Jenkins ruled that any agreement of a continuing character in the Bethlehem organization which would carry over after the date of the merger and thereby affect the interests of Sheet & Tube stockholders was admissible. The effective date for the merger was to have been April 30. Pro-merger lawyers argued that the merger has not yet been consummated.

Mr. Grace testified last week that his "factor" in bonus payments was 1½ on a sliding scale basis, but he did not know how this figured out on a percentage basis. Monday he explained there had been no change in the percentage of his participation in the Bethlehem bonus fund for executives since 1925. He said that "the percentage of distribution to me was 3.319, working up from the factor of 1½ on the sliding scale basis."

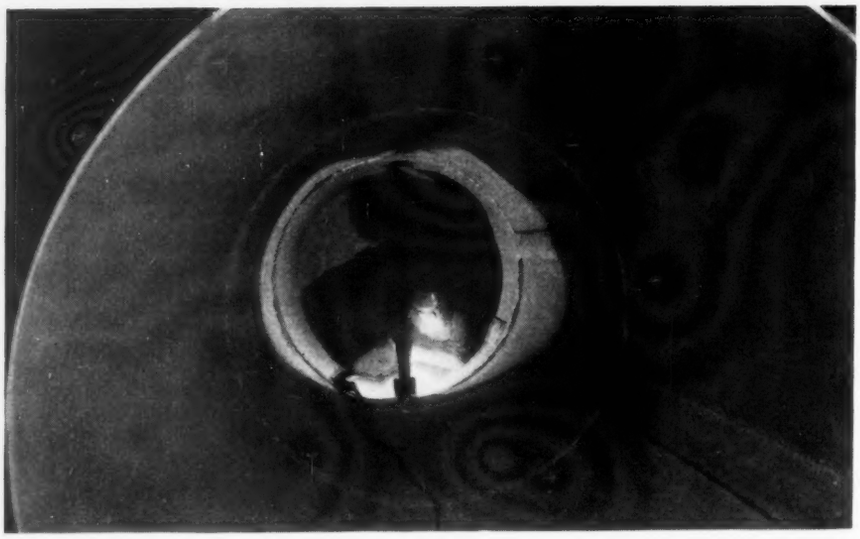
Bethlehem's by-laws as introduced in evidence provides for a maximum allowance for bonuses for all officers of "8 per cent of consolidated net earnings, after deducting all fixed charges and an amount equal to the annual dividends upon preferred stock outstanding, and before deducting depreciation."

The fund for bonuses is established on a sliding scale, beginning

International Newsreel Photo

FIRST AID TO VICE PRESIDENT

In addition to serving his country well in war times, Charles M. Schwab, chairman of the Bethlehem Steel Corp., was quick to hold an umbrella over Vice President Charles Curtis when a sudden shower threatened to interrupt the latter's address at the Cambria county fair at Ebensburg, Pa., where he was guest of honor. The size of the raindrops is indicated on the umbrella.



BUTT STRAPS USED TO STRENGTHEN WELDED TANKS

This unusual illustration shows how pressure vessels are fabricated by welding in the plant of the Columbian Steel Tank Co., Kansas City, Mo.; heavy steel strip plates, called "butt straps," being welded over each welded joint to provide additional joint strength. Tests have shown that by this method of fabrication the joints are in every case stronger than the steel plate itself. Vessels with strength to withstand 1200 pounds pressure per square inch are being built by this system of welding in the Columbia plant

with 3.43 per cent of the first $2,000,000; advancing to 9.62 per cent on the sixth $2,000,000. The second $12,000,000 advances by steps of $4,000,000 each, at 7.09, 7.4 and 7.7 per cent for bonuses. The third $12,000,000 advances in steps of $4,000,000 at 7.85, 8.15 and 8.45 per cent. The average for the first $36,000,000 is 7.375 per cent. All profits over $36,000,000 pay a bonus of 8 per cent.

A tabulation submitted by Bethlehem attorneys gives the following figures as to the total bonus, which included Mr. Grace's and that of 13 or 14 other men, paid during the years 1911 to 1929 and the first two quarters of 1930. It follows:

Year	Total Bonus	Pct. of Bonus to Earnings Base
1911	$ 118,512.00	3.89
1912	130,575.00	4.03
1913	524,506.00	8.16
1914	603,236.00	8.27
1915	1,897,493.00	8.13
1916	4,748,044.00	7.70
1917	3,913,833.00	8.24
1918	3,826,033.00	8.00
1919	2,059,742.00	7.76
1920	2,152,133.00	7.94
1921	1,017,987.00	7.32
1922	607,290.00	7.54
1923	1,800,972.00	7.99
1924	1,477,375.00	7.37
1925	1,750,498.00	7.66
1926	1,793,855.00	6.53
1927	1,489,972.00	6.41
1928	1,766,199.00	6.59
1929	3,425,306.00	6.54
1930 1st quar.	802,600.00	6.8017
1930 2d quar.	587,507.00	6.2835

Bethlehem by-laws bearing on bonus payments give the board of directors the right to fix compensation for officers, or to delegate the right to the chairman, Charles M. Schwab. Bethlehem counsel submitted records last week showing that Mr. Schwab was a consistent exponent of a sliding scale or incentive system of payments. In one letter he wrote to the board he ascribed the success of the Bethlehem corporation to this method of rewarding those actively engaged in building up the business. Evidence showed that no officer of the corporation except Mr. Grace received more than $10,000 a year as salary.

In his argument at that time for more specific information, Mr. Day declared that he would prove "Grace received $1,000,000 to $1,600,000 a year" from Bethlehem, and that he would further show that "Grace did not earn the money he received." "No man," he declared, "can earn $1,000,000 to $1,600,000 a year." He used the word "fraud" several times, in declaring that this "unheard of payment" would be forced on Sheet & Tube stockholders against their knowledge or will.

Mr. Purnell was on the stand last week prior to Mr. Grace. Day tried to show by questioning Mr. Purnell that Bethlehem inflated the value of its stock previous to the merger negotiations by buying its own shares. Mr. Purnell said he thought it was for the benefit of employes, the stock being held for resale to them. Mr. Purnell did not attach special significance to it. Mr. Day also tried to show that Bethlehem's depreciation had not been properly written off, so that earnings would show up more favorably.

Long Cement Day Ended

Chicago—Universal Atlas Cement Co., subsidiary of United States Steel Corp., states that final elimination of the 12-hour working day, involving shorter hours for men on that schedule and giving employment to others, has been worked out.

Foundrymen To Hold 1933 International Meeting in United States?

WORLD-WIDE representation, comprising over 1500 delegates from 28 nations was accorded the Sixth International Congress of Mines, Metallurgy and Applied Geology at Liege, Belgium, June 22-28, concurrent with the Belgian industrial exhibition commemorating the centenary of the country's independence. Delegates were, for the most part, from various technical and scientific societies of the world.

The metallurgical section of the congress was divided into six subsections—blast furnace, steel plant and ferrous alloys, foundry, nonferrous metals, nonferrous alloys, and fuel. In all, 213 papers were presented at the different sessions including exchange papers in the foundry subsection from Belgium, Czechoslovakia, France, Germany, Great Britain, Holland, Italy, Luxemburg, Poland, Spain, Switzerland and United States.

The metallurgical subsection for the steel plant and ferrous alloys included five groups of papers: Manufacture and melting of steel; manufacture of steel in the electric furnace; tests and heat treating; manufacture of rails; and two miscellaneous papers.

The foundry subsection meeting, organized by the Association Technique de Fonderie de Belgique, society of Belgian foundrymen, was the third foundry convention to be held at Liege, other meetings having been held in 1921 and 1925.

In connection with the foundrymen's meeting the International Committee of Foundry Associations held its annual meeting and consideration was given to several proposed revisions in the calendar of coming international meetings. In-

ternational foundry congresses have been held every three years in four participating countries, Great Britain, France, Germany and the United States. The last convention was held in London in 1929, the next being planned tentatively for Germany in 1932.

The committee may consider holding an international meeting in the United States in 1933, the year of the Pageant of Progress celebration in Chicago. This question will come up at a later meeting of the international committee to consider future congresses, to be held in Paris in October.

Boiler Shop No Neighbor For Mental Case Hospital

Traditionally a boiler shop is a noisy industrial unit. This fact has had a strong influence in leading the Coatesville Boiler Works to locate its new plate fabrication plant at Middletown, Pa., where it has bought the plant of the Standard Steel Car Co.

This decision has relieved the company from possible embarrassment in future operation. It first planned to build its boiler shop as an addition to its plants at East Coatesville, buying a site there in 1907. About two years ago the United States Veterans bureau bought adjoining property for a hospital for mental cases, although the bureau was notified of the company's intention to build a boiler plant. Coatesville citizens filed a bill in equity asking that the company be enjoined. The court decided against the request but was careful in its opinion to state it would not prejudge conditions which might exist after the buildings were constructed.

Rather than face further litigation and possible loss the company changed its plans and located at Middletown, Pa.

Similar Names Draw Fire of Trade Commission

Washington—Federal trade commission has filed complaint against L. A. Crancer and G. B. Fleishman, St. Louis, alleging firm names and styles adopted by them are similar to other companies previously established.

It is alleged that the Allegheny Tube & Steel Co., used by Messrs. Crancer and Fleishman, might be confused with the Allegheny Steel Co. Likewise, Erie Iron & Tube Co. for the Erie Iron & Steel Co., Illinois Steel Products Co. for the Illinois Steel Co., Westinghouse Union Co. for the Westinghouse Electric & Mfg. Co., and Pittsburgh Malleable Fittings Co. for the Pittsburgh Valve & Fittings Co.

Decline in Farm Products Prices Equaled in Steel

PRICES of agricultural products had fallen by June 15 to the lowest level since 1922, and have since receded still further, states the bureau of agricultural economics, department of agriculture, at Washington.

In this, farm products have nothing on steel. Current quotations on many important steel products have not been matched since 1922, and in some cases since pre-war. As much cannot be said for pig iron, scrap and miscellaneous products—except coke; these on the whole have liquidated only their rise of 1929.

Blanketing the entire iron and steel price situation, the market composite of STEEL stood July 15 at $33.18, the lowest since March 22, 1922.

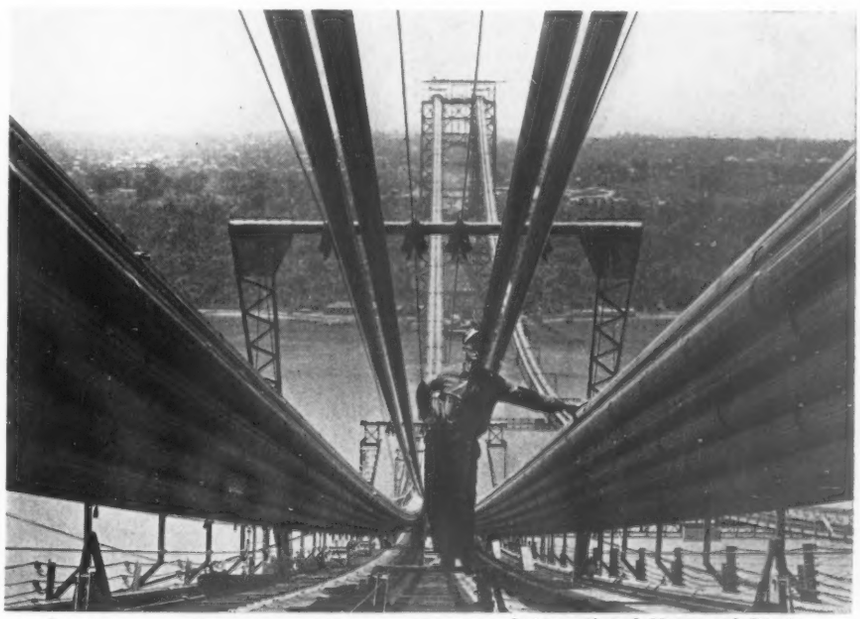
How the steel industry has given ground, without asking for relief at Washington, is evidenced by the following comparison:

	Quoted July 15, 1930	Lowest since
Steel, base Pittsburgh—		
Bars	1.70c	July, 1922
Plates	1.65c	June, 1922
Shapes	1.65c	June, 1922
Gal. sheets	3.15c	Oct., 1915
Plain wire	2.30c	Aug., 1922
Wire nails	$2.10	Dec., 1915
Cold fin. bars	2.10c	July, 1928
Wide hot strip	1.65c	in history
Tin plate	$5.25	Oct., 1928
Sheet bars	$31	April, 1922
Wire rods	$36	March, 1922
Pig iron—		
No. 2, Chicago	$18	Aug., 1928
No. 2, valley	$18	March, 1929
No. 2X, Phila.	$20.26	Sept., 1916
Mall., valley	$18.50	April, 1929
Basic, valley	$18	April, 1929
Scrap—		
Steel, Chicago	$12	Dec., 1927
Steel, Pitts.	$14.75	Sept., 1928
Steel, east. Pa.	$12.50	Aug., 1928
Miscellaneous—		
Beehive fur. coke	$2.50	May, 1916
Ferro., Pitts.	$103.79	Dec., 1927
Spiegel., fur.	$33	Nov., 1928

In other typical commodities the price situation is as follows:

	July 15, 1930	Lowest since
Wheat—		
No. 2 red winter, Chicago, per bu.	95c	Feb., 1914
Rubber—		
Crude, ribbed, smoked sheets, N. Y., per lb.	11⅛c	July, 1921
Sugar—		
Raw Cuban, duty pd., per lb.	3.26c	Dec., 1921
Copper—		
Electrolytic, per lb.	11¼c	Sept., 1921
Tin—		
N. Y., per lb.	29¼c	March, 1922

The dollar of 1926 will buy just a little more products of agriculture



International Newsreel Photo

SUSPENSION BRIDGE DOUBLES NEAREST COMPETITOR

The new Hudson river suspension bridge at New York spans 3500 feet, more than twice the suspended span of the next longest structure. Wire forming the four great cables measures more than 107,000 miles. Each cable is made up of 26,474 wires divided into strands of 434 wires each, all looped about terminals buried in solid rock at the shore ends. This view shows two of the four cables, the other pair being on the other side of the structure.

than it will of iron and steel, according to the department of agriculture's index. This dollar of 1926 purchased in June $1.12 worth of grain, $1.27 of livestock and poultry, $1.10 of butter and cheese, $1.00 of meat.

It also purchased $1.09 worth of iron and steel, $1.28 of nonferrous metals, $1.17 of lumber, $1.20 of brick, $1.47 of drugs, $1.17 of paper and pulp, $1.03 of furniture, $1.19 of coke, $1.05 of farm implements, 94c of automobiles, $1.55 of silk, 97c of leather and $1.13 of bituminous coal.

Earnings Reports Indicate Worst of Market Situation Is Passing

JONES & LAUGHLIN STEEL CORP., Pittsburgh, reports its second quarter net income after reserves and interest at $3,542,426, against $6,051,508 for the same period in 1929. First half net is $6,958,696, against $11,305,687 for first half 1929. Second quarter surplus after dividends is $1,655,794, against $3,727,273 for second quarter 1929. Six months surplus is $3,462,910, against $7,233,538 last year.

Interlake Iron Corp., operating merchant blast furnaces in the Great Lakes region, reports second quarter net of $532,632, equal to 26 cents a share, compared with $546,847 or 27 cents a share a year ago. First half earnings of $1,297,538 equal 65 cents a share against 52 cents a share for the first half of 1929.

United States Pipe & Foundry Co., Burlington, N. J., reports net profit for the first half of 1930 of $1,525,931, compared with $826,318 in the first half of 1929.

Pettibone-Mullikin Co., Chicago, for Nov. 1 to April 30 reports a gross income from operations of $442,508, and net income after expenses, taxes, depreciation and all charges of $30,480. The balance sheet as of April 30 reflects a strong financial position, with total current assets of $2,089,011.

A sales increase of 3.5 per cent is reported by Western Electric Co., Chicago, in the first six months ended June 30, covering its Hawthorne works at Chicago, its Baltimore and Kearny, N. J., works. Sales for the period totaled $201,620,000 compared with $194,694,000 last year.

General American Tank Car Corp., Chicago, has completed a good six months' business in the building and leasing of tank cars. Earnings for the first half are expected to show about $4,000,000. Contrary to some expectations, third quarter probably may be the best in the company's fiscal year, according to Max Epstein, chairman of the board.

Arthur G. McKee & Co., Cleveland, engineers, reports net profits for first half of 1930 as $292,810, compared with $446,740 for all 1929. The company has expanded its activities to include design and construction of industrial buildings.

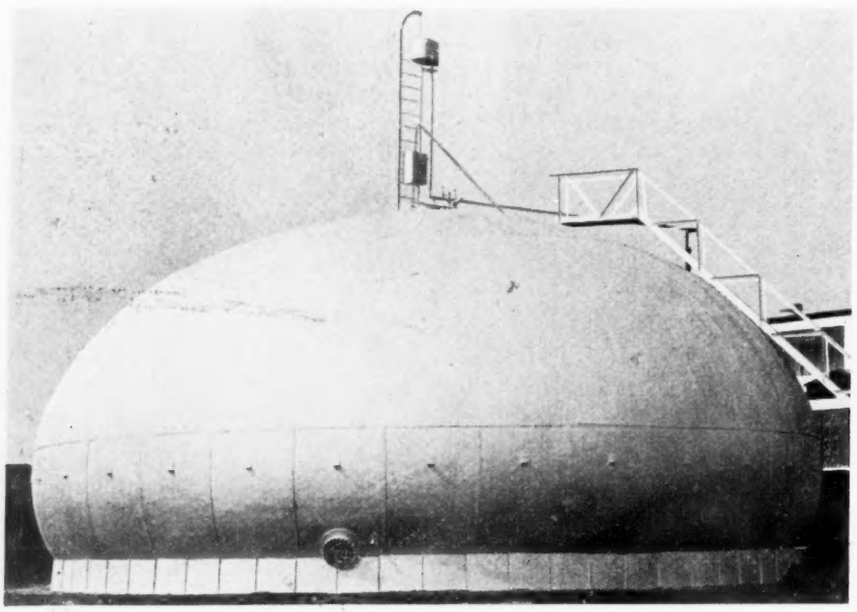
Continental Can Co., Chicago, reports sales for the first half in excess of those for the similar period last year, according to O. C. Huffman, president, who states that with average crops for the remainder of the year, 1930 should be a normal period for the company and equal to 1929.

M. A. Hanna Co., Cleveland, reports consolidated net income of $722,472 for the second quarter of 1930, compared with $1,351,714 a year ago. For the first half year net income for 1930 was $1,103,692, and for a year ago $1,733,454. A substantial part of the Hanna company's earnings is derived from stocks.

General Electric Co., Schenectady, N. Y., has reported its sales booked for the first half of 1930 at $197,229,346, compared with $194,353,308 for the corresponding period of 1929. Profit available for dividends on common stock for the first half was $29,273,276, comparable to $30,740,768 for the same months last year, or equivalent to $1.01 per share on outstanding common stock for 1930 and $1.07 per share for the first half of 1929.

Baldwin Locomotive Works, Philadelphia, for the first six months of 1930 shipped finished products valued at $17,470,000, compared with $8,590,000 for first half of 1929. Bookings for first half 1930 were $9,370,000, compared with $17,420,000 in 1929 first half. Shipments in June, 1930, were $3,290,000 and in June, 1929, $1,100,000. Bookings in June, 1930, were $582,000 against $504,000 in June, 1929. Unfilled orders July 1 both years were slightly over $14,000,000.

For the first six months of 1930 the Cooper-Bessemer Corp., Mt. Vernon, O., reports that the gross value of orders received by the company and its subsidiary, the Chapman-Stein Co., was $6,652,635. This compares with $5,698,591 for the same period of 1929, or an increase of 16.8 per cent. Unfilled orders on hand July 1 amounted to $4,255,569, compared with $2,323,649, a year ago.



STEEL TANK WITH LINES OF BALLOON

Looking more like a half-inflated balloon or a giant mushroom, this more or less spherical tank has been devised by Chicago Bridge & Iron Works, Chicago, for storage of high test gasoline and other volatile products. Evaporation is prevented by the tank being closed tight. The shape is that of a flexible container filled with liquid under pressure. It is economical in the use of material related to its capacity

Sees Russian Orders Lost

Lack of official relationship between the United States and the soviet government of Russia is costing this country considerable business which would assist in alleviating business conditions, states Moritz Kahn, of Albert Kahn Inc., Detroit, on returning from Russia.

Auto Output Declines 20 Per Cent; Fewer Shapes Sold

AUTOMOBILE production in the United States in June declined to 335,475 units, 20 per cent below May and 40 per cent under last June. First half output, at 2,219,546 cars and trucks, compared with 3,224,443 in the first half of 1929 and barely nosed out the 2,201,521 of the first half of 1928, as the department of commerce comparisons shows:

	United States		
1929	Total	Passenger cars	Trucks
June	545,932	451,371	93,183
(6 mos.)	3,224,443	2,763,297	451,513
July	500,840	424,944	74,842
Aug.	498,628	440,780	56,808
Sept.	415,120	363,471	51,576
Oct.	380,017	318,462	60,687
Nov.	217,573	167,846	48,081
Dec.	120,007	91,011	27,513
(Year)	5,358,420	4,569,811	771,020
1930			
Jan.	275,374	236,145	38,657
Feb.	346,940	296,461	49,457
March	401,313	335,720	64,204
April	*443,038	*374,913	67,560
May	*417,406	*362,522	54,370
June	335,475	289,245	45,771
(6 mos.)	2,219,546	1,895,006	320,019

*Revised.

Coal Output Behind 1929

Bituminous coal production in the week ended July 12 was 7,858,000 net tons, compared with 6,545,000 tons the week preceding and 9,558,000 tons a year ago. For 1930 to date output of bituminous has been 243,452,000 net tons; a year ago 271,756,000 tons.

Beehive coke output the week ended July 12 was 49,900 net tons, making the 1930 total 1,813,000 tons; 3,369,800 tons a year ago.

Steel Employment Down 3.3 Per Cent in June

Employment in iron and steel plants decreased 3.3 per cent in June compared with May, according to the bureau of labor. Payrolls dropped 5.5 per cent. Employment in foundries declined 2.8 per cent. An increase in demand for certain classes of labor developed in June, according to the bureau. In its current summary it states:

"There was little change in June in the general industrial situation in the country, and quite a number of plants and factories worked on part time schedules, with curtailed forces. Seasonal influences, such as inventory taking and vacation periods, were responsible in some instances for reduction in industrial activity. Building continued in fair volume, with a plentiful supply of building tradesmen available.

Structural Orders Down

New orders of fabricated structural steel in June were 66 per cent of capacity, compared with 74 for May, but shipments rose in June. Six-month totals for 1930 hold favorably to corresponding figures of last year, according to the department of commerce:

	New Orders		Shipments computed
1929	Tonnage	Computed tonnage	tonnage
June*	288,030	342,650	288,750
Total (6 mos.)	1,597,024	1,913,450	1,694,000
July*	292,478	350,350	304,150
Aug.*	301,964	361,900	338,800
Sept.*	264,056	315,700	315,700
Oct.*	282,973	338,800	350,350
Nov.*	187,760	227,150	284,900
Dec.*	263,498	315,700	265,650
Total (year)	3,189,753	3,823,050	3,553,550
1930			
Jan.*	212,105	252,000	244,000
Feb.*	237,066	284,000	*300,000
March*	208,650	248,000	280,000
April*	196,153	233,000	*300,000
May*	242,951	296,000	*284,000
June**	180,035	264,000	304,000
Total (6 mos.)	1,276,960	1,580,000	1,712,000

*Revised.
**Preliminary.

Truck Shipments Diminish

Electric industrial trucks and tractors shipped in June, at 95 units, were 34 per cent under May, and the lowest of the year. Decline was confined largely to domestic shipments, according to the department of commerce:

	Shipments		
1929	Total	Domestic	Export
June	201	185	16
Total (6 mos.)	1,103	1,033	70
July	168	163	5
August	154	144	10
September	158	151	7
October	167	134	33
November	118	110	8
December	151	124	27
Total (year)	2,019	1,859	160
1930			
January	140	123	16
February	113	106	7
March	123	109	14
April	106	101	5
May	144	125	19
June	95	63	32
Total (6 mos.)	721	627	94

Hoist Orders Shrink

Electric Hoist Manufacturers' association reports the number of hoists ordered during June decreased 21.3 per cent, from May. Value of such orders decreased 28.422 per cent from May. Shipments were 5.548 per cent lower in June than in May.

The next meeting will be held in September at Montour Falls, N. Y.

Foundry Equipment Gains

After four months of steady decline the monthly index of gross orders for foundry equipment has turned upward in June, regaining a portion of the loss. The index for June at 102.1 is the lowest since July, 1928, according to the Foundry Equipment Manufacturers association. The three-month average of gross orders declined from 126.5 in May to 105.9 in June, index of shipments increased from 149.4 in May to 160.5 in June and index of unfilled orders shrank from 179.3

(*Concluded on Page* 29)

NEW JONES & LAUGHLIN TOWBOAT ENTERS SERVICE

Named for the late president of the Jones & Laughlin Steel Corp., this new craft is the first of four being constructed for the Vesta Coal Co., a subsidiary, for use on the Monongahela, Ohio and Mississippi rivers. It is 163 feet long, 34 feet beam and 7 feet draught. Its engines are 800 horsepower. It is equipped with cooling as well as heating devices to give the crew every comfort.

Industrial Men in the Day's News

G. A. Reinhardt, Director, American Society for Testing Materials

FAMILIARITY with chemistry of iron and steel, metallurgy and research, has been gained during the past quarter century.

HE spent one year in Nova Scotia after graduating from Harvard university and located in turn in Youngstown, Leetonia, O., Cleveland and Youngstown, O.

APPOINTED in 1913 as metallurgical engineer by Youngstown Sheet & Tube Co., in 1929 he was promoted to director of metallurgy and research.

TWENTY-FIVE years experience in chemistry and metallurgy form the background for G. A. Reinhardt, director of metallurgy and research, Youngstown Sheet & Tube Co., Youngstown, O., who as noted in STEEL of July 3 was chosen a director of the American Society for Testing Materials at its annual meeting, Atlantic City, N. J., June 23-27. The first year of that quarter century was spent in Nova Scotia as chemist for Dominion Iron & Steel Co., Sydney, following his school years. He was born at New Washington, O., April 22, 1881, and was educated at Cleveland. He was graduated with a B.S. degree in chemistry in 1905 from Case School of Applied Science; in 1913 as metallurgical engineer from Harvard university, where from 1912 to 1913 he was assistant to Dr. Albert Sauveur, professor of metallurgy.

After the year in Canada, he was appointed chemist at Ohio works, Youngstown, O., for Carnegie Steel Co., Pittsburgh, in 1906. Later the same year he became chief chemist, Salem Iron Co., Leetonia, O., and from 1907 to 1909 he discharged similar duties for Cleveland Furnace Co., Cleveland. From 1909 to 1911 he was chief chemist for Crowell & Murray, Cleveland, and in 1913 was appointed metallurgical engineer by the Sheet & Tube company, being promoted last year to director of metallurgy and research.

He maintains memberships in the American Iron and Steel institute, American Institute of Mining and Metallurgical Engineers, American Society for Steel Treating, American Society for Testing Materials, American Gas association, British Institute of Metals, British Iron and Steel institute, and Verein Deutscher Eisenhuetten Leute. He is serving, 1928-30, as president of the Association of American Steel Manufacturers; is vice chairman of the metallurgical advisory board, Carnegie Institute of Technology, Pittsburgh, and vice chairman of the Pittsburgh experiment station, federal bureau of mines. He is a member of the Youngstown Torch club and several other organization. He has participated in discussion before numerous technical society meetings.

WILLIAM H. DAVEY, who has been in ill health for some time, has resigned as president, Empire Steel Corp., Mansfield, O., but will remain as chairman in an advisory capacity. C. H. Henkel, Mansgeld attorney, formerly executive vice president, succeeds Mr. Davey. During the merger three years ago of several independent sheet mills in northern Ohio into the Empire corporation, Mr. Henkel worked closely with W. H. Davey.

W. R. Jenkins has resigned as treasurer and is succeeded by J. D. Waddell, Niles, O., who will serve as secretary-treasurer and vice president in charge of finance.

Samuel Davey has resigned as director of purchases. A. I. Davey continues as vice president in charge of operations, and C. H. Stamm as vice presidentin charge of sales.

Members of the executive committee now include Mr. Waddell, A. W. Wheatley, Lima, O.; W. A. Thomas, Youngstown, O.; W. H. Davey and Mr. Henkel. The finance committee consists of Mr. Henkel, chairman; S. W. Bool, Pickands, Mather & Co., Cleveland; C. S. Thomas and Paul Wick, Youngstown; C. W. Ackerman, Mansfield, and Mr. Waddell, secretary.

John C. Chaffe, 30, formerly assistant to the president has been elected vice president Wrought Iron Co. of America in charge of sales. His headquarters will be at the executive offices, Commercial Trust building, Philadelphia. Mr. Chaffe formerly had been Philadelphia district manager for A. M. Byers Co., Pittsburgh. He was graduated as a mechanical engineer from the Lehigh university in 1914. He then became affiliated with the Byers company, the connection

bieng interrupted by his service with the American Army during the World war.

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Harold P. Furlong, formerly with Climax Molybdenum Co., New York, has become associated with the Wisconsin Gray Iron Foundry Co., Milwaukee.

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L. M. Tidd, formerly assistant to H. Brooks Gutelius, president, Continental Supply Co., St. Louis, was recently elected secretary-treasurer. He succeeds Henry M. Brown, retired.

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Dennis E. Benbow has resigned his position with Apollo Steel Co., Apollo, Pa., to become general superintendent, sheet mill division, Bethlehem Steel Co., Sparrows Point, Md.

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John H. Mayworm, appointed foundry superintendent July 1 for Warman Steel Casting Co., Huntington Park, Calif., was general superintendent of the Wehr Steel Casting Co., Milwaukee, for the preceding 12 years.

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Frederick A. Melmoth, since March 1, 1930, technical director, Detroit Steel Casting Co., Detroit, has been appointed assistant manager. Before locating in Detroit, he had been connected for many years with English foundry interests.

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Carl G. Ohlson, with Youngstown Sheet & Tube Co., Youngstown, O., for 15 years, the last five as consulting engineer, has been appointed assistant to J. W. Sheperdson, vice president, Morgan Construction Co., Worcester, Mass., effective Sept. 1.

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E. J. Best has become affiliated with Freyn Engineering Co., Chicago, and has gone to Leningrad, Russia, to join the group of Freyn company engineers rendering consulting service to Gipromez, the Soviet organization in charge of projecting new iron and steel plants there.

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Thomas F. McLaughlin has been appointed general works manager, Rustless Iron Corp. of America, with headquarters at Baltimore. Mr. McLaughlin formerly was with the Halcomb Steel Co., Syracuse, N. Y.

G. H. Webb has been appointed a member of the sales promotional department of the Rustless Iron Corp. of America. He had been assistant district manager at New York for the Central Alloy Steel Corp.

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E. H. Koenig will resign shortly as assistant chief engineer at the Minnequa plant, Colorado Fuel & Iron Co., Denver, to become affiliated with an eastern steel interest erecting a large steel plant in Russia. He expects to be engaged in the Russian work for three years and will sail Aug. 1.

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Arthur Vogt resigned recently as assistant district sales manager at Pittsburgh for Republic Steel Corp., Youngstown, O., to become identified with Associated Alloy Steel Co., Cleveland, as district sales manager in the Cleveland territory. He was with the Republic company for about 12 years.

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Walter Blocher, formerly in the Indianapolis sales office, Central Alloy Steel Corp., Massillon, O., has been transferred to the Pittsburgh office of the Republic corporation as assistant district sales manager, to succeed Mr. Vogt.

William H. Davey

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T. L. Lewis, general manager of sales, A. M. Byers Co., Pittsburgh, has resigned effective Aug. 1 to become associated with the Norvell-Wilder Supply Co., Beaumout, Tex., distributor of oil country goods. Mr. Lewis has been associated with the Byers company for 18 years, serving as general manager of sales for the past 12 years.

George E. Clifford, Pittsburgh division manager for A. M. Byers Co., has resigned to become assistant sales manager, pipe division, Republic Steel Corp.

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A. B. Scott, formerly sales agent, Bethlehem Steel Co., Bethlehem, Pa., local district, has been transferred to Baltimore as manager of structural and plate sales in that territory.

W. T. Dougherty, formerly salesman in the Philadelphia district, has been transferred to succeed Mr. Scott.

J. W. Murphy, frog and switch products salesman for the Bethlehem has been transferred from Philadelphia to Baltimore, replacing J. W. Stoever, transferred from Baltimore to Philadelphia to handle frog and switch products.

Foundry Equipment Gains

(*Continued from Page 27*)

in May to 166.7 in June. Comparison of gross orders is as follows:

	1927	1928	1929	1930
Jan.	180.4	132.7	180.5	160.1
Feb.	198.0	123.6	197.0	196.4
Mar.	131.1	138.6	209.4	164.1
Apr.	130.1	107.7	172.6	122.8
May	13.8	325.6	177.7	92.7
June	138.4	149.1	177.3	102.1
July	89.9	94.8	218.6	.....
Aug.	106.4	278.0	229.5	.....
Sept.	80.4	170.0	216.3	.....
Oct.	98.0	185.0	245.3	.....
Nov.	95.8	197.8	128.6	.....
Dec.	106.8	166.5	208.0	.....

Base: Average monthly shipments for 1922-23-24 taken as 100.

Sheet Sales and Output Reduced in June

Daily average sheet sales, production and shipments reported by independent mills decreased in June. Sales averaged 6247 tons compared with 6600 tons in May; production amounted to 6856 tons, against 8846 tons in May, and shipments were 7100 tons compared with 8595 tons. The National Association of Flat Rolled Steel Manufacturers' complete report for June follows:

	Net tons	Per cent of capacity
Total sales for June	187,412	53.6
Total production	205,675	58.8
Total shipments	212,930	60.9
Unfilled tonnage July 1	431,324	123.3
Approximate finished stock on hand awaiting shipments	116,601	33.3
Approximate in stock, unsold	83,988	24.0

Total sheet capacity for June, 1930, was approximate 517,200 net tons; capacity on which above figures are based 349,750 tons.

A comparison of monthly totals follows:

	Sales	Production	Shipments
June, 1929	307,911	337,841	347,989
July	337,222	323,905	344,676
August	282,107	366,734	365,649
September	274,568	302,490	301,330
October	258,810	319,660	291,135
November	134,391	204,071	207,200
December	234,599	181,916	178,575
January, 1930	382,122	291,529	241,677
February	203,315	275,952	241,441
March	299,764	259,658	275,235
April	300,086	308,988	291,601
May	204,589	274,220	266,436
June	137,412	205,675	212,930

Less Babbitt Consumed

Babbit metal sales and total apparent consumption both declined in June, giving a sales total for the first half of 18,580,988 pounds compared with 28,618,739 pounds a year

ago, as the following department of commerce comparison indicates:

1929	Total apparent consumption	Sold by manufacturers	Consumption by producers
	(Figures given in pounds)		
June..	5,927,907	4,820,953	1,106,954
Total (6 mos.)	35,732,172	28,618,739	7,113,433
July..	5,360,711	4,047,887	1,312,824
Aug...	5,432,597	3,997,427	1,435,170
Sept...	5,225,004	3,887,599	1,337,405
Oct...	5,518,851	4,007,260	1,511,591
Nov...	4,522,034	3,205,689	1,316,345
Dec...	3,343,492	2,394,159	949,333
Total (year)	65,134,861	50,158,760	14,976,101
1930			
Jan...	4,408,455	3,405,041	1,003,414
Feb...	3,426,576	2,525,771	900,805
March	5,051,575	4,039,395	1,012,180
April	3,868,408	2,838,877	1,029,531
May	3,932,501	3,225,298	707,208
June	3,702,989	2,546,606	1,156,383
Total (6 mos.)	24,390,504	18,580,988	5,809,516

Truss for New Waldorf Weighs 312 Tons

A steel truss weighing 312 tons, 90 feet long and 33 feet high, has been installed in the Waldorf-Astoria hotel, New York.

The bottom cord is the first of eight steel sections 90 feet long and weighing 63 tons. Six sections vary in weight from 20 to 30 tons. The top cord is also 90 feet long and weighs 74 tons.

The truss, fabricated by the McClintic-Marshall Co., Pittsburgh and erected by the Thompson-Starrett Co., New York, supports a portion of the building from the ninth to the forty-sixth floors, leaving over 10,000 square feet in the main ball room free from columns.

Durant-Controlled Gear Companies Merge

Announcement has been made of the organization of the Syracuse Gear Co., Syracuse, N. Y., taking over control of the New Process Gear Co. and the Adams Axle Co., both of Syracuse,, and the Warner Corp., Muncie, Ind., all three formerly controlled by Durant Motors Inc. President of the new company is Anthony A. Henninger. Headquarters will be maintained at Syracuse.

The consolidation is said to involve properties valued at over $6,000,000.

Delay Tariff Cost Probe

Washington—Pending reorganization of the tariff commission by President Hoover, to be completed by Sept. 17, nothing is being done on the more than 50 cost investigations, including one on pig iron.

Obituaries

W. McKINLEY GARRIGUES, 41, assistant sales manager for the alloy division of Republic Steel Corp., Youngstown, O., died July 15. He had held this position since the merger of the Central Alloy Steel Corp., Massillon, O., with Republic. Prior to the merger he was general sales manager for Central Alloy Steel Corp. Previously he had been associated with the American Steel Foundries at Franklin, Pa., and Alliance O. He was a member of a number of societies and organizations including the American Society for Steel Treating. In 1908 he graduated from Massillon high school and in 1912 from Cornell university.

W. M. Garrigues

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Fred I. Blake, tool manufacturer, Worcester, Mass., died July 18.

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Clarence P. Brown, 40, president, Aluminum Alloy Foundry Corp., Little Falls, N. J., died July 21 at his home in Maplewood, N. J.

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William H. Beattie, 45, assistant sales manager, Colorado Fuel & Iron Co., Denver, died July 12. He had been connected with the company for 27 years.

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James P. Soper, Chicago, vice president, Safety Car Heating & Lighting Co., New York, and active in other business interests in New York and Chicago, died July 14.

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Michael F. Murphy, former master mechanic, Bethlehem Steel Co., Lackawanna, N. Y., died recently. Mr. Murphy retired recently after 45 years' service with the Bethlehem company and its predecessor in Buffalo, Lackawanna Steel Co.

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Byron O. Brill, 51, purchasing agent, J. G. Brill Co., Philadelphia, street car builder, died July 21. He was the grandson of John G. Brill, founder of the company.

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Joseph A. McDonald, 65, for many years identified with the steel industry in the Pittsburgh district, and brother of the late Thomas McDonald, died July 15. He became associated with the Ohio Steel Co. when it was founded in 1893. He was made assistant general superintendent of the mills when the Carnegie Steel Co. bought out the Ohio company. Mr. McDonald later became general superintendent and subsequently held the same position with the Cambria Steel Co., Johnstown, Pa. A short time later he went with the Jones & Laughlin Steel Corp.

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Samuel Raisler, 55, president Raisler Heating Co., and Raisler Sprinkler Co., New York, died July 16. Entering the employ of the American Radiator Co. at 17, he served in several capacities, establishing the Raisler Heating Co. in 1898 and the Raisler Sprinkler Co. in 1913.

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Walter H. Seaver, 59, manager, wire products sales, Columbia Steel Corp., San Francisco, died July 13. Born in West Roxbury, Mass., he joined the sales organization of John Wales & Co., Boston in 1887. He was appointed secretary and sales manager, National Steel & Wire Co., in 1898 but resigned in 1905 to become assistant manager of the electrical and wire rope department, American Steel & Wire Co. in New York. He was transferred to San Francisco in 1907 as assistant Pacific Coast sales agent for that company and at the time the United States Steel Products Co. was formed, was appointed manager of the wire products department.

Election Slows Canada

Toronto, Ont.—Usual midsummer slackness in iron and steel in Canada is accentuated by the dominion's election campaign, which may involve sweeping changes in the tariff and hence is engendering caution.

Steel producers are filling railroad contracts but are not replacing shipment. Algoma Steel Corp., Sault Ste. Marie, Ont., this week is laying off 1200 men.

Here and There in Industry

COATESVILLE BOILER WORKS, Coatesville, Pa., has taken over the Middletown, Pa., plant of the Standard Steel Car Co., now part of the Pullman Car & Mfg. Corp. This includes about 40 acres, with half a million square feet of floor in brick and steel buildings. This addition to its capacity makes the Coatesville company one of the largest concerns devoted exclusively to steel plate fabrication.

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Dyer Engineers Inc., consulting engineer in industrial control systems, has opened a district office at 1405 Henry W. Oliver building, Pittsburgh, in charge of John W. Hacker.

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Superheater Co., New York, has moved its Chicago office from room 801 to room 1325 in the Peoples Gas building, 122 South Michigan boulevard.

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American Brake Shoe & Foundry Co. of California has moved its offices from 1178 East Thirty-second street to 5309 East Slauson avenue, Los Angeles.

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American Steel & Wire Co., Cleveland, has awarded a bronze medal to its plant at Anderson, Ind., in token of four years without a lost time accident.

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Crandall & Perry Inc., Dallas, Tex., jobber of industrial equipment and scrap metals, has changed its name to Crandall Iron & Steel Co. J. R. Crandall is president.

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Lewis B. Lindemuth, consultant for steelworks operations, has moved his office from 40 Wall street to the Chrysler building, 405 Lexington avenue, New York.

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General Refractories Co., Philadelphia, has opened a district sales office at Birmingham, Ala., located in the Empire building, in charge of Walter S. Stapler. This office will serve the southeastern states.

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Illinois Wire & Mfg. Co., Joliet, Ill., J. M. Deming president, advises that published reports of a branch manufacturing plant to be erected at De Ridder, La., were not correct, inasmuch as it is a temporary arrangement to work up a supply of material in that region by use of machinery brought from plant at Lufkin, Tex.

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S. Flory Mfg. Co., Bangor, Pa., and the Atia Sales Corp., New York, have been merged. The former manufactures sanitary ash and garbage collection devices and the latter scoops and dredges.

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San Antonio Machine & Supply Co., San Antonio, Tex., has bought the foundry department of the Central Texas Iron Works, Waco, Tex., and will consolidate it with its plant in the latter city.

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Great Lakes Chemical Works, Detroit, has formed a new division at its Detroit plant, including a nonferrous foundry for the manufacture of cored and solid phosphor bronze bushing bars in standard 12-inch lengths. The foundry is now in production.

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American Cotton Picker Corp., St. Louis, has 400 cotton-picking machines in production and the year's output will be 1000. The program for 1931 calls for 20,000 machines. W. C. Durant, New York, is chairman of the board and Fred W. A. Vesper, St. Louis, is president.

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Republic Steel Corp. has appointed the Chicago Steel Service Co., 3912 South Ashland avenue, Chicago, distributor for Enduro KA2 sheets. For the past several years the company has been Chicago distributor of Toncan iron also produced by Republic Steel Corp.

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Columbus Rolling Door Corp., Columbus, O., will start production Aug. 1 at its new plant on West Goodale street. Its product will include steel automatic and service doors for garages and industrial plants, steel rolling doors, automatic fire doors and shutters and motor-operated doors.

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Waterloo Sunshine Co., Waterloo, Ont., A. T. Thom, vice president and general manager, has let contracts for a plant for the manufacture of combines. The general contract has been awarded to the John B. Gray Co., Toronto, steel work to the Dominion Steel Bridge Co., Toronto, and steel sash to the Eastern Steel Products Co., Toronto and Preston, Ont. The plant will cost $275,000 without equipment. The plant will supply combines for the North and South American markets, by an agreement with the H. V. McKay Co., of Australia, which formerly had these markets.

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E. F. Houghton & Co., Philadelphia, manufacturers of lubricating and other oils, will build a small manufacturing plant in England, in addition to plants in France and Germany. Locations at Liverpool and Manchester are under consideration. L. E. Murphy, president, has sailed for England to decide on the location and inspect the other plants.

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Hughes Tool Co., Houston, Tex., is erecting a modern service plant, including machine shops, at Midland, Tex., to stock and repair oil tools for the West Texas region. Shop building and warehouse, 96 x 170 feet and 80 x 190 feet, are under construction. Plant investment will approximate $150,000, including machinery. R. E. Kinsey will be manager of the plant which is expected to be in operation by Sept. 1.

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Henry Vogt Machine Co., Louisville, Ky., is celebrating the completion of 50 years of business activity. The culmination was a birthday party in the new 9-story warehouse of the company, participated in by employes and friends of the president, Henry Vogt. Each of 945 employes was presented an eight-day clock by Mr. Vogt and the employes gave the latter a suite of office furniture.

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Northern Conveyor & Mfg. Co., Janesville, Wis., which recently completed an extensive addition and enlarged its line of standard conveyors to include mining machinery and power loaders for coal yards, has increased its authorized capitalization from 1000 shares of no-par common to 5000 shares. The preferred issue of 1000 shares is unchanged. The business of the company for the first half of this year is reported slightly more than 11 per cent over the same period of 1929, according to J. B. Whitnall, president.

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Freyn Engineering Co., Chicago, has sent its first group of 12 engineers to Russia to build for the Soviet government a complete steel plant at Kuznetsk, Siberia. Part of the group will be stationed at Moscow and the remainder at the site of the plant. The group consisted of Arthur O. Baer, Franklin Glenn, George W. Campbell, Alexander A. Burrell, Theodore A. Hoffmeyer, Walter M. Lundergan, Joseph E. Brown, A. B. Neumann, Mr. and Mrs. A. S. Hellstrom, Alexander Manus, Oscar Johnson and Mr. and Mrs. A. J. Winetz and daughter.

Wesley Bowman Studio

Steel Angles from Chicago

AFTER digging in for a quiet summer, iron and steel groups in this district have discerned rays of hope for August. It appears nothing of importance will come for freight and passenger car builders, nor will railroads get into their secondary track steel schedules until later, if at all.

On the other hand, pig iron inquiries and sales are making a stir, implement and tractor works are preparing to order out a little material for September-October shipment against autumn tillage tool schedules, and gas-line pipe tonnage is maintaining fair backlogs for plate mills. These shipments to the Milwaukee welded pipe fabricator—about 50,000 tons in July and probably 45,000 tons in August—comprised the only tonnage in the way of backlogs for steel finishing mills.

Carbuilders Save Situation by Diverse Products

Western freight car building shops, with one or two exceptions, are down to bed rock in operating schedules. Outside of accessory and parts production for freight cars, minor equipment work and specialty lines, activity probably will be extremely slow for probably the greater part of this year.

General American Tank Car Corp. is in a better position than some of the others. This shop has been building some tank cars for private account and for leasing, is working on some 600 cars for a subsidiary, and is building about 1000 stock cars on a leasing arrangement for a western road. American Car & Foundry Co.'s western plants are virtually down. Pullman's plant at Michigan City, Ind., which for a year and a half has been operating near capacity, now is quiet. Bettendorf, Standard Steel Car, Pressed Steel Car and Mt. Vernon are putting the finishing touches on their season's equipment assemblies. The average for the industry, measured by capacity, is barely 30 per cent.

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Car repair and building companies, despite capacities that would meet any emergency, are able to weather the seasonal ebbings by participation in other than strictly railroad equipment fields. American Car & Foundry thus has strengthened its position by supplementing production for the carriers. Extension of its operations in the production of miscellaneous products of widely diversified kinds constantly is being made.

Newer activities of this company include manufacture and sale of automotive vehicles and motor-driven rail cars, power boats and automotive accessories. Stocks of structural and reinforcing steel are maintained at the car repair plants of the North American Car Corp. at Tulsa, Okla., and Coffeyville, Kans., and fabricating operations are conducted at both plants. This company entered the steel fabricating business in 1928 to keep facilities at those two points operating at capacity, and this division has shown steady growth. In fact, the steel plate and structural division in the first two months of this year made a substantial gain over the similar months in 1929.

Pullman Leads World in Car Building

What is ahead in the way of a merger era in railroad equipment fields is being scanned with interest. The Pullman organization, through its recent acquisitions, probably has become the world's largest railroad equipment maker, even exceeding the American Car & Foundry Co. Pullman makes approximately one-third of the total number of railroad cars produced in the United States.

Facilities of the combined companies, since Pullman took over Standard Steel Car Co. and the Osgood-Bradley Co., are sufficient to build more than 2000 passenger cars and 50,000 freight cars annually. This would meet the demands for the entire country in the leaner years. Heretofore, Pullman has been more of a transportation system than a car building industry. In taking over the Standard company, Pullman has acquired the pioneer steel car builder of the country, as a former chairman of Standard's board, the late John M. Hansen, is credited with conceiving and building America's first all-steel freight and passenger cars in the late nineties.

American Builders Enter European Markets

Freight and passenger car building companies for some years have sought to make more effective their regional penetration in domestic areas, but are broadening their scope as well in foreign equipment markets. The recent property purchases by Pullman included, besides the domestic properties, those of the Middletown Car Co., owning and operating a car assembly plant at Rio de Janeiro, Brazil, and of the Enterprises Industrielles Charentaises, a Standard subsidiary, owning and operating a freight and passenger car plant at La Rochelle, France.

The French plant is well located for general export business as well as for business in France, and this year has had a substantial volume of orders. Thus an important link is established, as the French plant builds much of the sleeping car and de luxe equipment used on European railroads, and was the first to introduce the all-steel passenger car to

Europe. Also, General American Tank Car Corp. has a Swiss subsidiary.

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Claims are being made that 20 per cent additional life may be added to standard section steel rails as a result of a new steel tie plate now being tried out in this country for the first time. The new fastening is being used on three miles of the St. Louis division of the Illinois Central railroad, while on European roads this accessory has been in service on several thousand miles of trackage.

Added life to both rails and ties is attributed in part to the lessened wave motion of the rail as a result of the rigidity resulting from the new design.

Due to the manner in which the plate is fastened to the tie, the grip on the rail and the use of a small piece of wood, or shim as a cushion between the rail and the plate, the design differs rather sharply from the present accessory.

The plate has a smooth base, but its top face is provided with two shoulders, the rail being held between them. The two steel clamps, fashioned in the manner of the letter "U," hold the rail to the plate. These clamps straddle the shoulders of the plate, one on each side of the rail, and are firmly attached to the plate by means of a bolt and nut, the bolt passing through the top of the clamp. Statements are that wear at the tie plate is minimized by its method of fastening.

It is pointed out that the size of the tie plate allows placing the spikes so far out that they are independent of the rail fastening, thus reducing the strain on the wood fibers of the spike holes. This plate, being much heavier than the present type, is fastened to the tie by four screw spikes, independent of the rail. Double spring washers on the clamp bolts and the wooden shims, it is stated, permit greater elasticity and eliminate damage from water.

Universities Aid Use of Power in Farming

Farm implement makers and the tractor industry are being aided by the universities and state experiment stations, which are spreading the gospel of power farming. This is resulting in new marketing fields for all the steel products serving agriculture. Montana State college early this month sent out a "Low-Cost Farming Special" to tour various points on the Northern Pacific railroad, emphasizing the latest in farm equipment.

Thirteen cars of farm machinery and three of agricultural exhibits carried the theme of low-cost production. Combines, tractors and new type tillage implements predominated.

What the industrial census will disclose as to ownership of farm tractors throughout the country is awaited with interest. An estimate of a farm publication gives ownership at 846,162. This is being questioned as the census bureau estimated 506,745 in 1925, while production and sales figures for the five-year period, 1925-29, were 653,430. Thus, discards necessarily would be abnormally high to result in such a low ownership figure. Tractor interests are estimating tractor ownership in excess of 850,000. Texas and New York are virtually tied, according to most figures, with 45,000 farm tractors in each state.

Vacation Habit Brings Steel Added Tonnage

Vacation days usually are dull days to the steel industry. Hearts of the concrete bar makers, however, beat with gratitude this year at what vacations have done for them in western markets. The millions that have been spent on hard surfacing of highways this year have helped make the most active reinforcing bar season in several years, despite generally slow business. And the vacation tourist started the movement for better roads.

An estimate has just been made that since the masses have become "vacation conscious" the annual two-weeks-with-pay has formed the basis for business services that amount to three billion dollars yearly, and has proved a stimulus to consumption of iron and steel, although usually not during the actual vacation season. As the vacationist consumes while he produces nothing, he becomes an important factor in economic things, particularly at times when a surplus of production has occurred.

Manufacturers of graders, excavating equipment and other road-building machinery have been expanding in recent years to an unusual degree as a result of the hard-surfaced mileage being laid. The value of road building equipment increased 14.3 per cent in the four-year period 1923-27. Several western road machinery and shovel makers have been running at a high rate while the slump has been settling in other fabrication lines.

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Contracts for the second building for the Chicago world's fair in 1933 are being let. The general award went to the contractor who built the famous Fine Arts building of the World's Columbian exposition at Chicago in 1893. The second of the 1933 structures, the travel and transport show building, is to be a windowless metal structure, with a dome suspended by "sky-hooks," the latter to be used for the first time in building history.

The catenary, or suspension bridge principle, will be utilized, thus permitting a great area free of columns and other obstructions, for the exhibition of large products for the transportation industry. The exterior will be covered with a metal sympathetic to dramatic illuminating effects at night. The absence of windows will make it possible to control the lighting effects within by day or by night.

Battledeck Floors in Steel-Aluminum Building

Plans for an all-metal 17-story apartment building with steel battledeck floors and roof and walls of glass and sheet aluminum, to be built in Chicago probably this autumn, have been developed by Bowman Bros. Inc., 952 North Michigan avenue, Chicago.

The aluminum sheets are to be clamped to the structural steel framework with straps. It has been virtually determined to use all-steel battledeck floors of ¼-inch plates. steel work will be by continuous welding. Structural members are to be 5-inch I-beams, 12.25 pounds. Fire-proofing will be with 2-inch tile. The spandrel wall will be of metal filled with rock wool. The cost per square foot for the floors has been estimated at $1.32, and including the columns a total cost of $1.57 per square foot, complete is given.

It is claimed that the walls, 3½ inches thick, will have heat insulating qualities equal to those of a 36-inch brick wall. The savings in space through using metal walls, it is estimated, are 135 square feet, or 14 per cent of the net rentable area, over brick wall construction. A large factor of safety has been allowed to take care of vibration, denting and shivering under a high wind.

It is estimated the construction can be completed in eight to nine months. Speed in erection is considered an important feature. This results in part from the fact that many of the metal parts can be formed in the shops and delivered in complete sections.

Would Extend Steel Road

Pittsburgh Steel Co., Pittsburgh, is seeking approval of the Pennsylvania public service commission of its plans for extension of the main line of the Monessen & Southwestern railroad from Monessen to Belle Vernon, Pa. This road is privately owned by the Pittsburgh Steel Co. and the branch to cost $1,000,000, would furnish direct railway connections between the Monessen and Allenport plants of the company.

EDITORIAL

Replace Equipment Now While Business Is Dull

AMONG the hot-weather stories now in circulation is one pertaining to a middle-aged widow, who, left an ample and well fortified source of income by her late husband, has been living in a fashionable residential hotel in the outskirts of a large city. Recently she called for the hotel manager and asked him if he could transfer her to a less pretentious and considerably cheaper suite of rooms.

He replied that less expensive quarters were available, but intimated that she would find them much less desirable and advised her against taking them unless forced to do so for the sake of economy. She assured him that her income was secure and that from the standpoint of her finances, she was not obliged to curtail expenses. However, she was determined to take the smaller suite because (to use her own words) "My friends tell me business is bad and everyone is cutting down expenditures, and under such circumstances I feel I should do the same." Whereupon, she moved into the less commodious rooms.

The well-to-do widow's reasoning may appear ludicrous to many business men, but its counterpart can be found in industry. Numerous executives, responsible for the management of large industrial enterprises, are blindly clutching their purse strings and refusing to spend money for beneficial improvements for no better reason than that business is dull and that funds should be conserved during a period of depression. Their reasoning is more absurd than that of the widow, because they have the advantage of a background of facts which should clearly show them the fallacy of their argument.

If You Have Money, Use It on Plant

Before proceeding further, let it be said that allowance is made for companies in which financial condition precludes extensive expenditures at this time. No one expects them to engage in money spending activities. Our attention is directed to companies with rich treasuries whose executives are putting thumbs down on rehabilitation and maintenance expenditures simply because business is depressed.

We know of one large builder of engineering equipment who is utilizing the present quiet spell by going over every machine tool, crane and other piece of shop equipment, checking them for wear and tear, and repairing and improving them for hard service when business recovers. But to every plant in which these wise measures are taken, there are several in which no attention whatever is being given to idle equipment.

Good business sense would seem to dictate that now is the time to replace inefficient equipment. Good machinery is more readily available and supplies are cheaper today than they have been in years. Sellers of equipment and accessories now are better prepared to give unusually fine service than they will be later on when the rush for hurried installations begins. Money is cheap and in many cases companies would be justified in borrowing funds to carry on badly needed improvements.

Business will recover, and to the man who has the courage of this conviction, now is the time to get ready for it. The new motors, belts, drives, machines, cranes, conveyors, etc., purchased now—when installation can be carried on under the most favorable circumstances—will pay far greater dividends than similar equipment bought and installed after the plant is filled up with rush orders.

Plant Efficiency or Dividends?

To the most capable executives the question of making improvements in plant facilities during a dull period is one of moral obligation to stockholders. Such men know that in the long run a plant kept up to top-notch efficiency continuously will earn more than one in which the management crams for efficiency at the eleventh hour before each business recovery.

But not all executives take this view, and among the exceptions is the type of industrial leader who in time of depression thinks it is better to slight the physical aspects of his plant in order to pay dividends that look good to his stockholders. It would be interesting to know how many companies are neglecting plant and equipment so that the dividend rate will be high enough to convince stockholders that their president is an astute business man and is riding out the storm in fine shape. Paying dividends out of the bottom of the barrel may appear to be good strategy now, but in the days to come it will prove to be a short-sighted policy.

In urging management to "replace now while business is dull," we have no thought of trying to stimulate business artificially. Self interest alone should be enough incentive to the progressive manufacturer to put his house in order.

How Industry Is Greeting STEEL

Excerpts from a few of the hundreds of telegrams and letters received after the July 3 issue of STEEL had been distributed to subscribers

A Step in the Right Direction

"I have just gone through the first issue of STEEL and find myself somewhat at a loss for words that would express briefly my keen appreciation of what you have done.

"It seems to me that in thus modernizing the make-up, editorial content and tone of your paper, you are doing something so excellent and so necessary that every business paper of consequence will have to utilize similar methods before many years have passed."

"A Smart Thing To Do"

"The first issue of STEEL was put on my desk yesterday and was quite impressive. It takes a lot of courage to change the identity of a publication so well established as the *Iron Trade Review*. I believe, however, that it was a smart thing to do and hope, of course, that time will prove that it was a profitable venture."

Approves New Arrangement

"The new arrangement of STEEL is one that should be of interest to everyone, especially ourselves. We are in the main interested in steel products, wire and cold rolled strip. The articles in your text are very informative, and your new treatment of the various phases of the steel industry with respect to conditions will assist every reader, because each part of the industry is taken up separately. By one glance we can refer for instance, to your reports on wire or cold rolled strip or cold finished bar steel."

Can Help Show Advantages of Steel

"In response to your letter of July 3, permit me to congratulate you on your proposed program for developing your magazine.

"The physical form, including the type and the layout, are reflective of modern trends. Your editorial program, likewise, is appreciative of the problems and prospects of the industry. As you suggest, steel is finding an ever widening use. Publications can help to educate the public to the advantages of steel.

"It is a pleasure to wish you continued success in the development of your magazine."

"A More Distinguished Tone"

"I have gone through both issues of STEEL with more than a little interest and the second confirmed my impression of the first—that you and the staff have accomplished a vast improvement. The new arrangement and style of treatment is in step with the times and I am sure it will assure for the book a much wider and more positive influence than ever before.

"Permit me to congratulate you particularly upon the Business Trend in which I have a special interest. Nowhere in the book is the improvement more pleasingly marked.

"STEEL impresses me as having a new virility and being sure of the job it wants to do. The new arrangement of the advertising pages also gives a more distinguished tone to the paper."

New Name Fine; Otherwise STEEL Is "Terrible"

"You are to be complimented on changing the name of the *Iron Trade Review* to the much more fitting name of STEEL.

"The balance of your publication is terrible. Never has it been my misfortune to see a more jumbled up, unreadable trade paper than STEEL.

"It is too bad to make such a forward move in the name of your publication and then revert back to make-up policies in effect 20 or 25 years ago."

"An Idea Extremely Potent"

"I have been very much interested in your announcement of the transition of *Iron Trade Review* to STEEL. I admire very much your youthful spirit which is entirely in keeping with the times and the service to industry.

"It is a publishing idea extremely potent, and I think it is a mighty smart move."

Likes New Appearance and Layout

"We have scanned with interest the first issue of STEEL and want to compliment you on the change which you have made in your publication.

"The new paper is extremely modern—certainly so in regard to make-up and selection of type faces—and its name is truly in keeping with the 'Steel' age in which we live."

How Industry Is Greeting STEEL

(Concluded from Preceding Page)

"Another Evidence of Progressiveness"

"What a firecracker you exploded in the July 5 issue of *Sales Management!*

"Almost every individual in our organization has had a guess on the "mystery steel campaign" which has been appearing in *Sales Management*, but no one of them, to my knowledge, guessed correctly. It was a peach of a campaign, and certainly, your identity was well hidden.

"It seems to me that you have made a smart move indeed in changing the name of *Iron Trade Review* to STEEL, and it is just another evidence of Penton progressiveness. Most publishers would, undoubtedly, have discouraged the very thought of changing the name of such a well known publication as yours, but it is most logical, and should, undoubtedly, result profitably to you."

Likes New Style; Statistics Interesting

"We have read the first number under the new title with absorbing interest, and hasten to congratulate you on the improved layout and appearance of the paper, as well as on its better name."

* * *

"I certainly like the style of *Iron Trade Review* since it has been changed. Your business statistics and the way in which they are given, interest me more than any other feature."

* * *

"STEEL sure looks good. I like that change in name. It seems to fit more closely with our interests than it did before."

"Very Much Pleased with Change"

"I have examined carefully the first number of the remodeled *Iron Trade Review*, which is now called STEEL, and am very much pleased with the change."

"I have been a regular reader of the *Iron Trade Review* for many years and will continue to read it with even greater interest."

* * *

"The initial copy of your publication under its new name has been received by me and I want to congratulate you on the announcement and the accompanying booklet. I wish your publication even greater success and prestige than it has had before."

More Attractive than I. T. R.

"Enjoyed very much looking over the first issue of STEEL, and it presents a very attractive appearance typographically and is very interesting from an editorial viewpoint. It seems that you are making a forward step, at least, as far as the *Iron Trade Review* is concerned, and certainly this new publication is more attractive in its get-up than the old."

"Do Not Like To Paw Over Ads"

"The first number of the new magazine has come to my attention, and as a subscriber of somewhat long standing I want to rise up and object to the new set-up, in which your news matter is beginning to be scattered in a miscellaneous manner through the advertising pages; or vice versa, whichever best fits the case.

"It would seem to me that your magazine is entirely a trade paper, and that your subscribers generally are well able to pay a subscription price which should not be predicated upon the magazine as an advertising publication.

"For our part, we certainly do not like the idea of having to paw over page after page of advertising matter in order to find the information we are interested in."

"You Have Made a Wise Move"

"May I congratulate you on your change to STEEL. Steel is representative of the industry today and I think you have made a very wise move. May I wish the old publication all possible success under the new name."

* * *

"I want to extend to you congratulations on form and set-up of the first issue of STEEL. In the past *Iron Trade Review* has filled a real need in the ferrous industry and this need will continue to be met in perhaps a greater way by the new publication in the exploitation of Steel."

Can Find What You Want Immediately

"*Iron Trade Review*, recast and expanded, becomes STEEL. And what a paper it is! You can find what you want immediately and it is told in the fewest possible words. This is the steel age. The iron age is past and gone forever. . . . The paper is a masterpiece in the field of trade paper publication."

THE BUSINESS TREND

Business Sinks To Summer State of Lethargy

BUSINESS has settled down to a slow midsummer pace, which according to present indications, may not quicken before six weeks or more have passed. Scrutiny of the numerous factors affecting the situation reveals no hint that a marked upturn is in sight. The curves of orders, production and prices still are pointed downward and the general tone of business seems to preclude any appreciable awakening of activity until autumn.

In the steel industry, operations have fallen below 70 per cent, with little chance for them to rise sharply until all of the four principal consuming groups are ready to take steel in greater volume. The automobile industry, now virtually observing a prolonged vacation, is out of the market except for small tonnages for production and an occasional order for new models. The railroads are buying few cars, but in June the shipments of new locovotimes were the largest in that month for two years. Total requirements of steel for building construction are disappointingly low. Residential and industrial building is below expectations, but public works are well ahead of last year. Pipe line work, demanding large tonnages of steel, and shipbuilding are bright aspects in an otherwise drab steel market.

Prices still are tending downward, with prospects of slipping more before bottom is reached. STEEL's composite is down to $33.18 and current weakness in certain quotations of iron and steel products is not reassuring to those who have been expecting an early halting of the downward march. Wholesale commodity prices in general are lower. An encouraging aspect is that retail prices are beginning to drop to levels more in keeping with wholesale quotations.

While money is abundant and cheap, those who might utilize it to advantage seem reluctant to do so. Thus far there is little evidence to show that easy money has stimulated building construction, equipment buying or other activity which might help the general business situation. On the other hand, there are instances in which legitimate, well planned projects are being held in abeyance for no better reason than that those responsible for them do not have the courage to proceed in the face of the present dull state of business.

The current period of quietness was expected, and, like hot weather, it should be endured calmly and with as little concern as possible. The majority of well informed industrial leaders already have resigned themselves to bedrock activity in July and August, and having discounted them are preparing for what the fall months may bring forth.

The Barometer of Business

Industrial Indicators

	May 1930	June 1930	June 1929
Pig iron output (Daily ave., tons)	97,972	104,564	123,853
Machine Tool Index	146.7	165.1	315.2
Unfilled orders (tons)	3,968,064	4,059,227	4,256,900
Ingot output (Daily ave., tons)	137,610	149,066	195,255
Dodge bldg., awards in 37 states (sq. ft.)	48,214,200	53,732,000	72,797,000
Automobile output	343,000	441,826	536,000
Coal output; tons	33,683,000	35,884,000	37,900,000
Business failures; number	2,026	2,179	1,767
Business failures; liabilities	$63,130,000	$55,541,462	$31,374,761
Cement production, Bbls.	17,237,000	17,271,000	16,775,000
Cotton consumption, bales	405,181	473,917	570,281
Car loadings (weekly ave.)	930,527	919,711	1,052,000

Foreign Trade

	June, 1930	May, 1930	June, 1929
Exports	$299,000,000	$322,000,000	$397,000,000
Imports	250,000,000	285,000,000	352,000,000
Gold exports	26,000	82,000	550,000
Gold imports	13,938,000	23,555,000	30,212,000

Foreign Exchange

	Normal	July 18, 1930	June 23, 1930	July 22, 1929
Sterling	$4.86	$4.86	$4.86	$4.84⅝
Francs	19.3c	3.93c	3.92c	3.91c
Lira	5.26c	5.24c	5.24c	5.22c
Marks	23.8c	23.87c	23.86c	23.81c

Financial Indicators

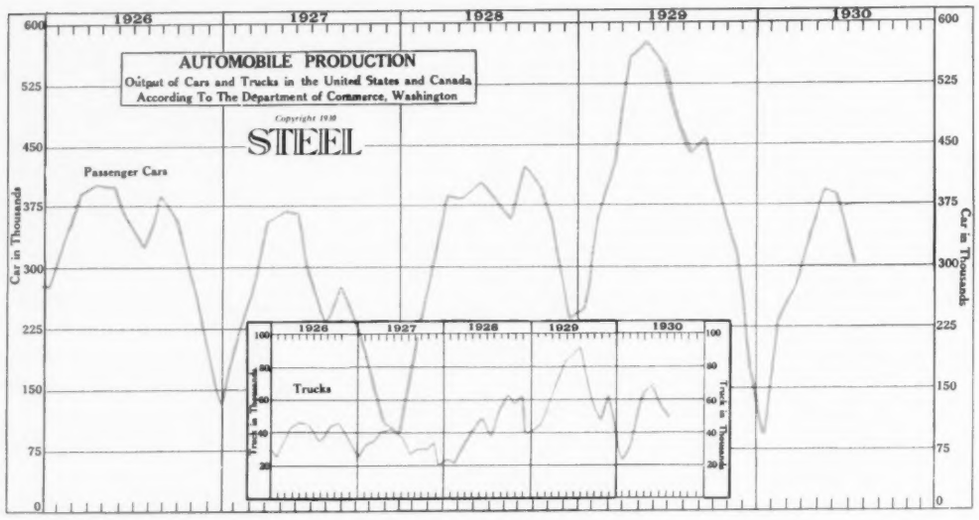
	June, 1930	May, 1930	June, 1929
25 Industrial stocks	$286.73	$266.36	$406.41
25 Rail stocks	$116.45	$110.94	$150.85
40 Bonds	$87.41	$86.79	$86.44
Bank clearings (000 omitted)	$49,910,305	$48,852,169	$53,916,000
Commercial paper rate N. Y., (per cent)	3¼-3¾	3¼-4	6
*Commercial loans (000 omitted)	$8,336,000	$8,402,000	$9,195,000
Federal Reserve ratio, per cent	81.7	83.2	74
Railroad earnings**	$69,173,825	$62,271,504	$103,000,000
Stock sales, N. Y. stock exchange	76,593,000	78,040,030	69,546,040
Bond sales, par value	$226,148,000	$221,488,000	$233,656,000

*Leading member banks Federal Reserve System.

**May and April, 1930, respectively.

Commodity Prices

	June, 1930	May, 1930	June, 1929	Monthly Average 1913
Steel's composite average of 14 iron and steel prices	$33.53	$34.23	$36.99	$26.32
Bradstreet's index	10.56	10.7741	12.49	100
Wheat, cash (bushel)	0.99	1.04	1.45	0.92
Corn, cash (bushel	0.77	0.79	1.05	0.51
Petroleum, crude (Bbl.)	1.18	1.18	1.36	2.50



Passenger Cars

	1929	1930
Jan.	364,773	245,573
Feb.	431,755	310,504
Mar.	546,489	354,274
Apr.	571,956	396,350
May	541,310	384,287
June	469,260	301,898

Trucks

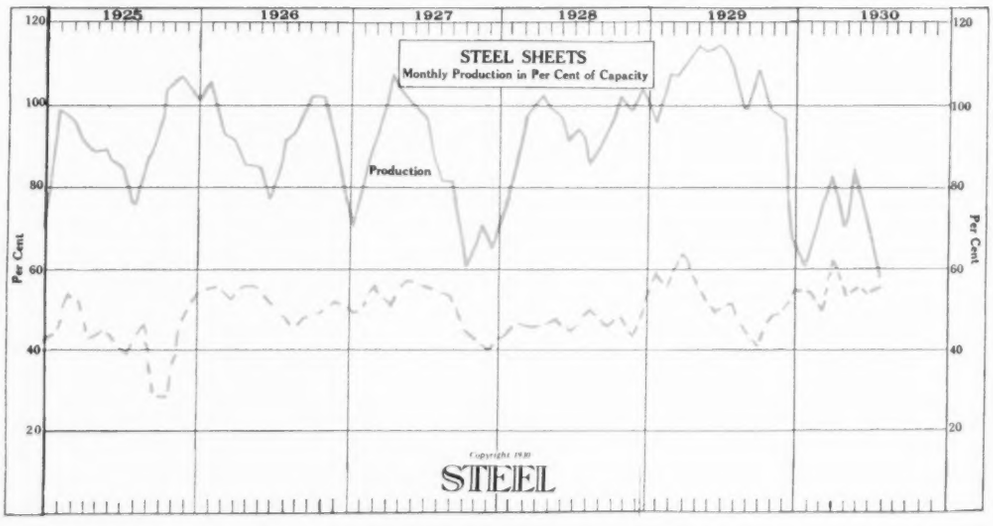
	1929	1930
Jan.	57,765	40,189
Feb.	65,950	51,984
Mar.	79,587	67,769
Apr.	91,855	70,945
May	94,940	57,791
June	98,164	48,667

Curtail Automobile Production to Conform to Demand

Automobile production in the United States and Canada declined 21.5 per cent in June, according to the department of commerce report. Although it is customary for production to fall off in the summer, June's output represents a level 35.7 per cent below the corresponding period in 1929 and 21.0 per cent below that of 1928. Truck production for June was 15.8 per cent below that of May and 50.4 per cent below June of 1929, but 9.3 per cent above June of 1928. Passenger cars produced in June numbered 301,898 units, compared to 384,287 for May and 469,260 for June, 1929. Trucks numbered 48,667 units for June, 57,791 for May, and 98,164 for June, 1929.

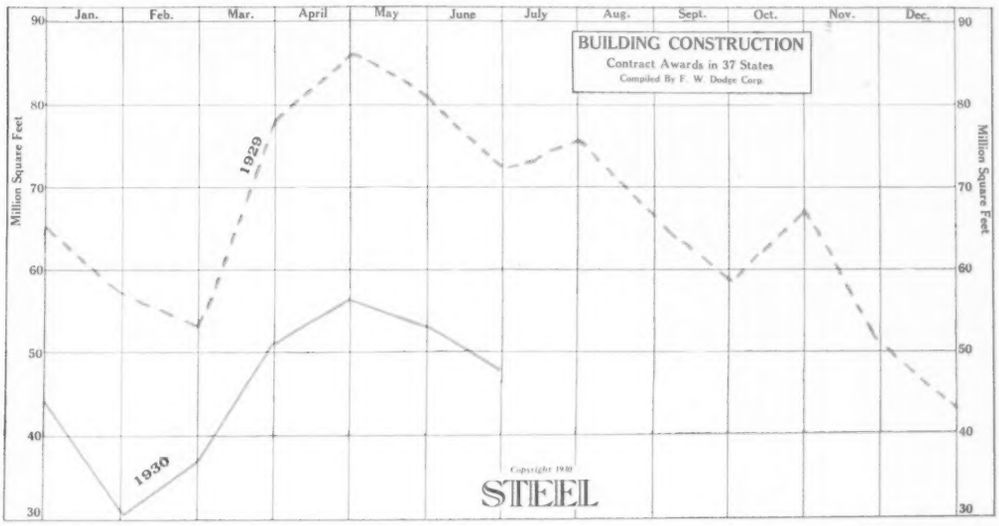
Orders for Steel Sheets Are Hit by Lull in Auto Activity

June production of steel sheets declined to a new low level for the year. Independent steel sheet producers, according to the figures compiled by the National Association of Flat-Rolled Steel Manufacturers, in June were operating at 58.8 per cent of capacity as compared to 73.3 one month ago and 110.4 per cent one year ago. This represents a drop of 19.8 per cent from May and 46.7 per cent from June, 1929. Stocks, however, increased slightly in June to 57.3 per cent of capacity from 54.7 per cent in May. The sheet situation clearly reflects the dullness of the automobile industry, which is engaged in a general curtailment of operations during parts of July and August.



Per Cent of Capacity

	Production	Stocks
June, 1930	58.8	57.3
May, 1930	73.3	54.7
Apr., 1930	84.0	56.6
June, 1929	110.0	53.5
May, 1929	115.8	49.4
Apr., 1929	115.2	53.8


BUILDING CONSTRUCTION
Contract Awards in 37 States
Compiled By F. W. Dodge Corp.
Jan. Feb. Mar. April May June July Aug. Sept. Oct. Nov. Dec.
Million Square Feet
90 80 70 60 50 40 30
1929
1930
Copyright 1930
STEEL

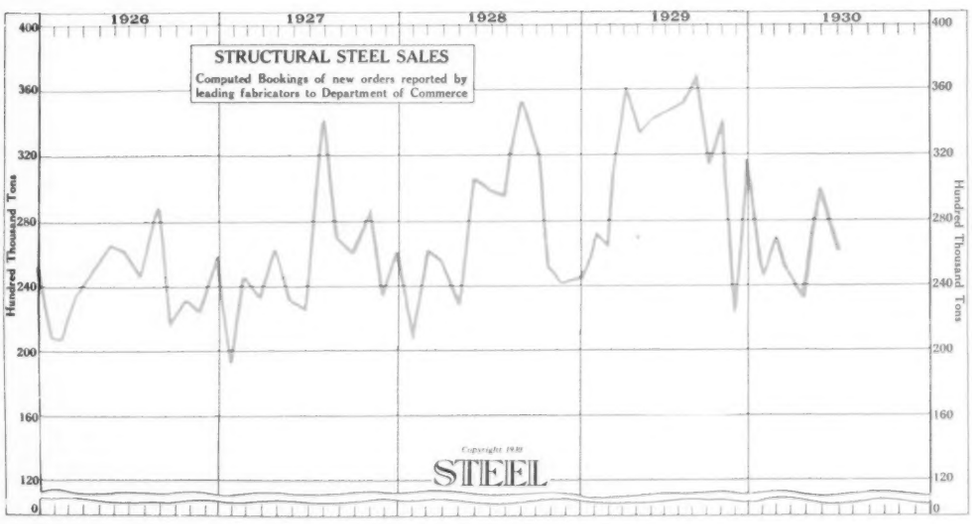
Square Feet	
June, 1930	48,214,200
May, 1930	53,732,000
June, 1929	72,797,500

Construction Awards for June Were Off 33 Per Cent from Last Year

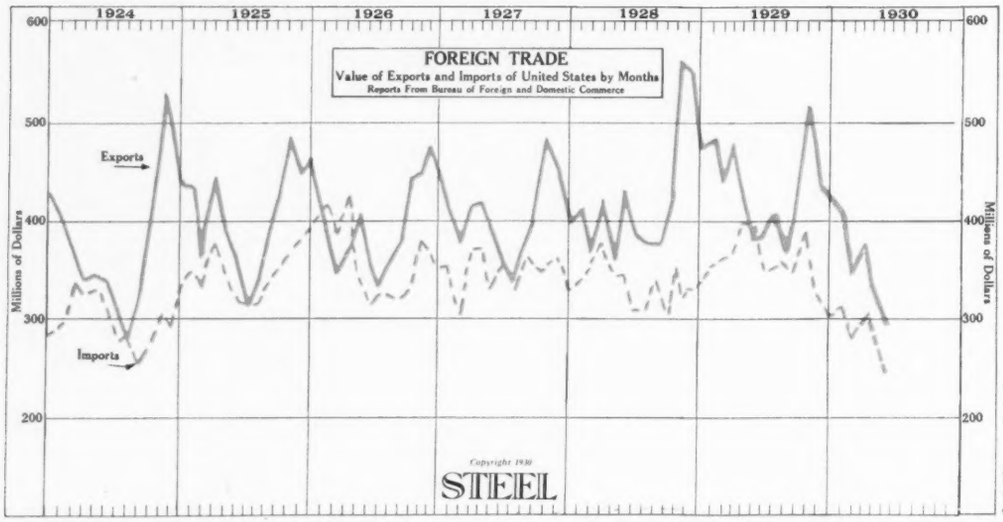
June construction awards, as reported by the F. W. Dodge Corp., declined 10.2 per cent. From 53,732,000 square feet in May, awards have dropped to 48,214,200 square feet in June. Compared with the 72,797,500 square feet of June, 1929, this is a reduction of 33.7 per cent. The figures by classes reveal that industrial awards decreased from 8,022,600 square feet in May to 4,358,600 square feet in June, while residential awards decreased from 23,462,300 to 20,781,700 square feet. Although June witnessed a rather sharp reduction from May, it was approximately the same percentage decrease as that which occurred in 1929.

Structural Orders in June Wipe Out Half of Gain in May

Structural steel orders, as reported by principal manufacturers to the department of commerce, dropped 10.8 per cent in June. The decline followed a large increase in May which was due primarily to large orders coming from the New York area. In May new orders increased 60,000 tons over the previous month and in June orders dropped 32,000 tons, thus retaining only about half of May's gain. Orders for June stand at 264,000 tons, a reduction of 23 per cent from the 243,650 tons of June, 1929. Public work may help swell structural orders as projects get under way during the next few months.


1926 1927 1928 1929 1930
STRUCTURAL STEEL SALES
Computed Bookings of new orders reported by leading fabricators to Department of Commerce
Hundred Thousand Tons
400 360 320 280 240 200 160 120 0
Copyright 1930
STEEL

Tons	
June, 1930	264,000
May, 1930	296,000
June, 1929	342,650



Exports

June, 1930	$299,000,000
May, 1930	319,591,816
June, 1929	393,186,000

Imports

June, 1930	$250,000,000
May, 1930	284,643,925
June, 1929	353,403,000

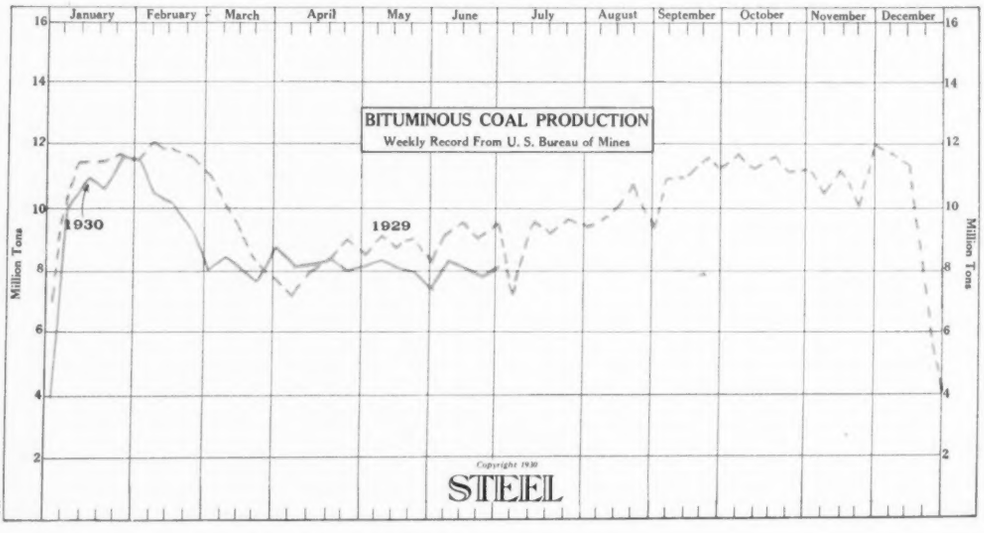
June Exports and Imports Decline To Low Levels

During June the foreign trade of the United States declined to the lowest level the country has experienced in the last six years. According to the department of commerce, exports declined 7.1 per cent in June to $299,000,000, a level that has not been reached since July, 1924, when exports amounted to $276,600,000. Imports fell even more than exports. In June imports declined 12.3 per cent to $250,000,000, the lowest since the $276,600,000 registered in January, 1922. Both imports and exports for June were approximately $100,000,000 below those for the same month last year. While the new tariff may have had a slight effect on imports, causes which have been operated for months are largely responsible for the low figures.

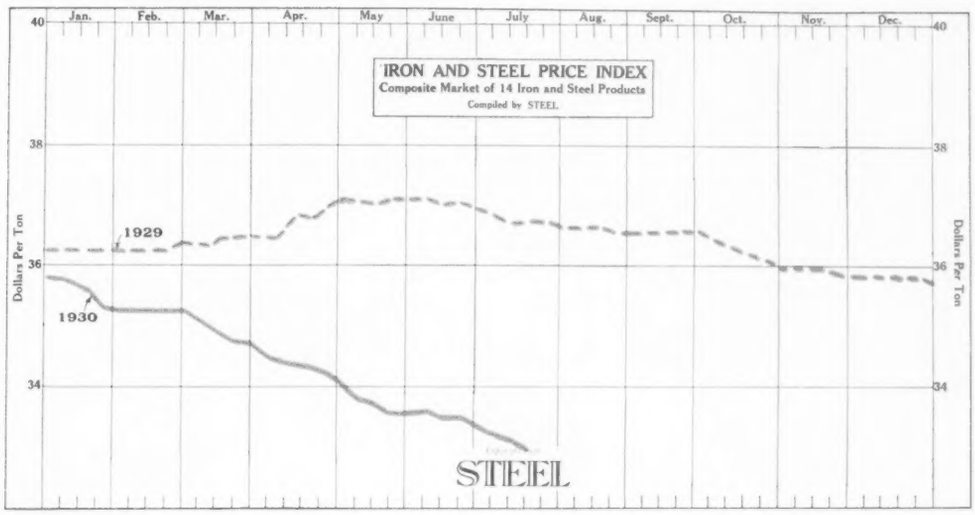
June Output of Bituminous Coal 6.3 Per Cent Lower

In June production of bituminous coal totaled 33,683,000 tons, according to the monthly report of the United States bureau of mines. The June output represents a decline of 6.3 per cent from that of May and 12.7 per cent from the output of June, 1929. Anthracite coal production in June was slightly greater than in June last year.

The first half total for soft coal was 229,059,000 tons, compared with 254,685,900 for the first six months of 1929. This is a decrease of about 10 per cent. The usual trend of soft coal output is upward from a low point in May or June to a peak in October or November. The coal industry has been in the throes of readjustment for several years.



	1929	1930
Jan.	52,140	49,778
Feb.	47,910	39,555
Mar.	39,870	35,773
Apr.	37,380	35,860
May	40,706	35,954
June	38,580	33,683



Weekly Figures

July 16	$33.18
July 9	$33.32
July 2	33.34

Monthly Averages

June, 1930	$33.53
May, 1930	33.73
April, 1930	34.44
June, 1929	36.99

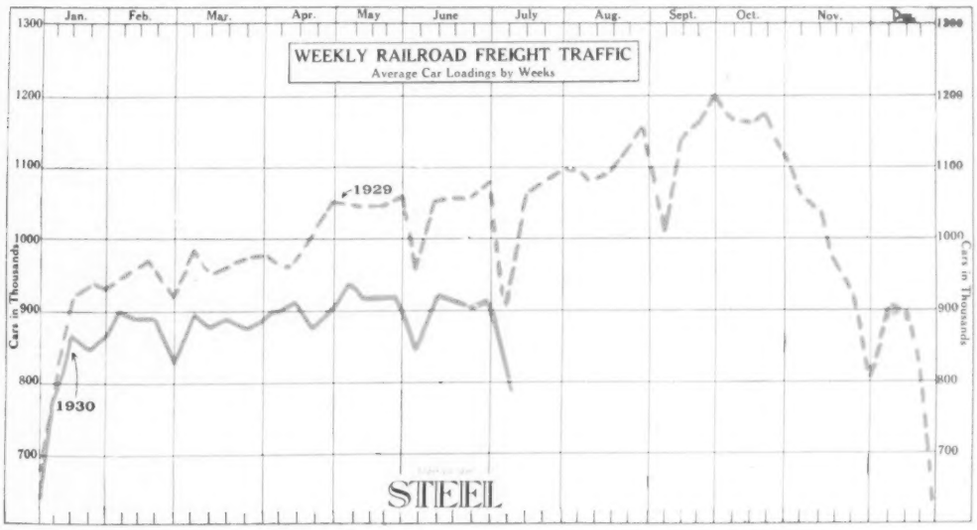
Composite of Steel and Iron Prices Still Headed Downward

STEEL'S composite of 14 steel and iron quotations for July 16 stood at $33.18, a decline of 14 cents from the figure for July 9. The demand for pig iron and finished steel at this time is not sufficiently active to assist in arresting the slow downward swing of prices. From the present tone of the market it is difficult to imagine anything that would cause a general upturn in quotations within the next 30 days. Prices seem destined to go slightly lower or to drag bottom for weeks before the ascent begins. Experience gained in past declines is that they seldom continue beyond 18 months.

Freight Car Loadings Down; Seasonal Increase Now in Prospect

Freight car loadings for the week ending July 5 declined sharply as expected, owing to the curtailment of shipping on the Fourth of July and the Saturday following that holiday. The drop from the preceding week was 15.4 per cent, while a year ago the traffic of the holiday week was 16 per cent below that of the last week in June.

With July 4 in the background, car loadings should now gradually increase until the Labor day holiday, if the seasonal trend of past years is followed. Car loadings for the week of July 5, 1930, were 792,141.



1930

July 5	792,141
June 28	936,848
June 21	920,859
June 14	927,754
June 7	935,647
May 31	860,249

1929

July 5	911,143
June 28	1,096,569
June 21	1,069,874
June 14	1,071,245
June 7	1,055,768
May 31	972,825

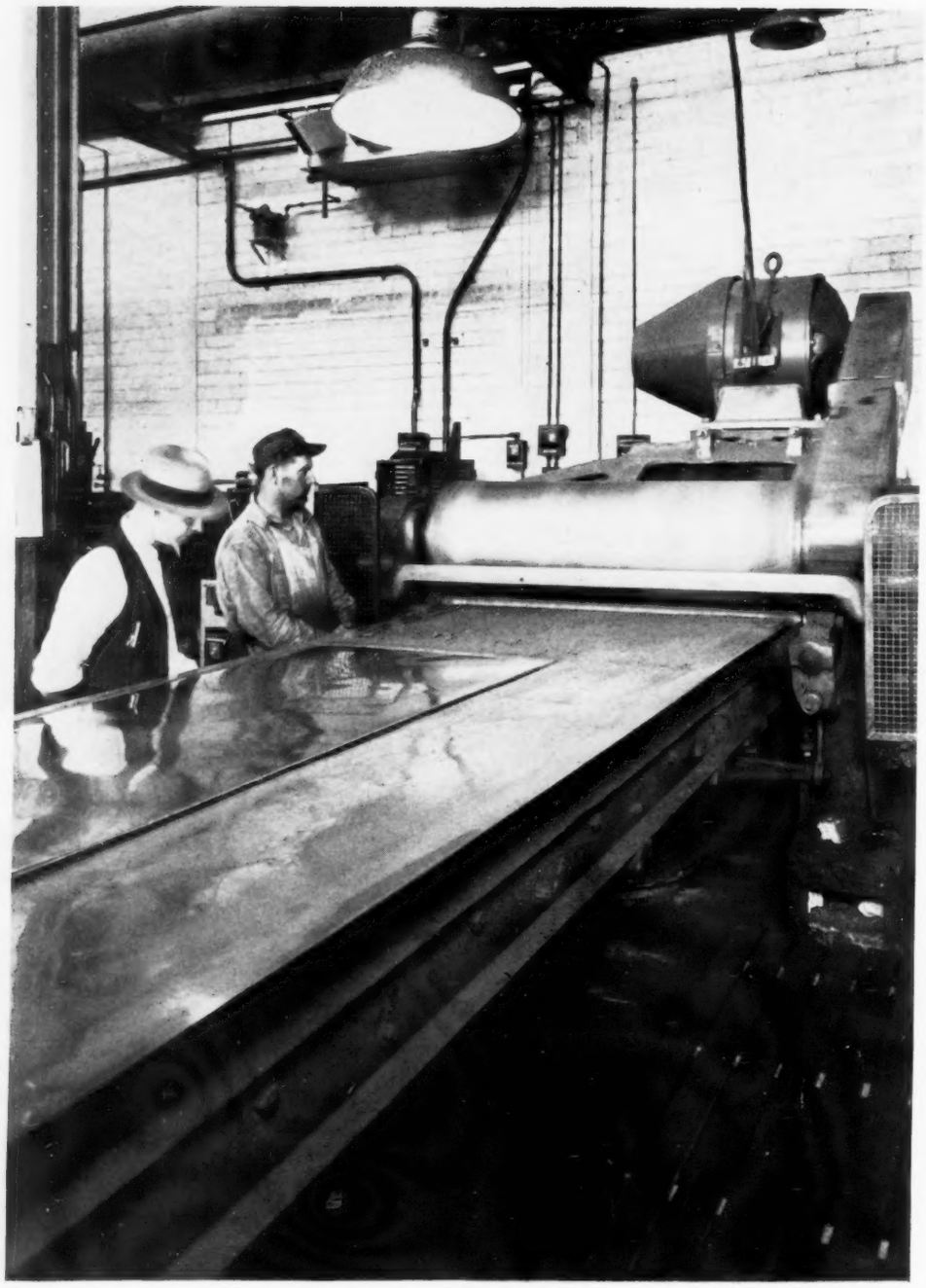


FIG. 1—Chrome-nickel corrosion-resisting sheets of the 18-8 composition acquire a polish of high luster and great beauty in the final buffing operation.

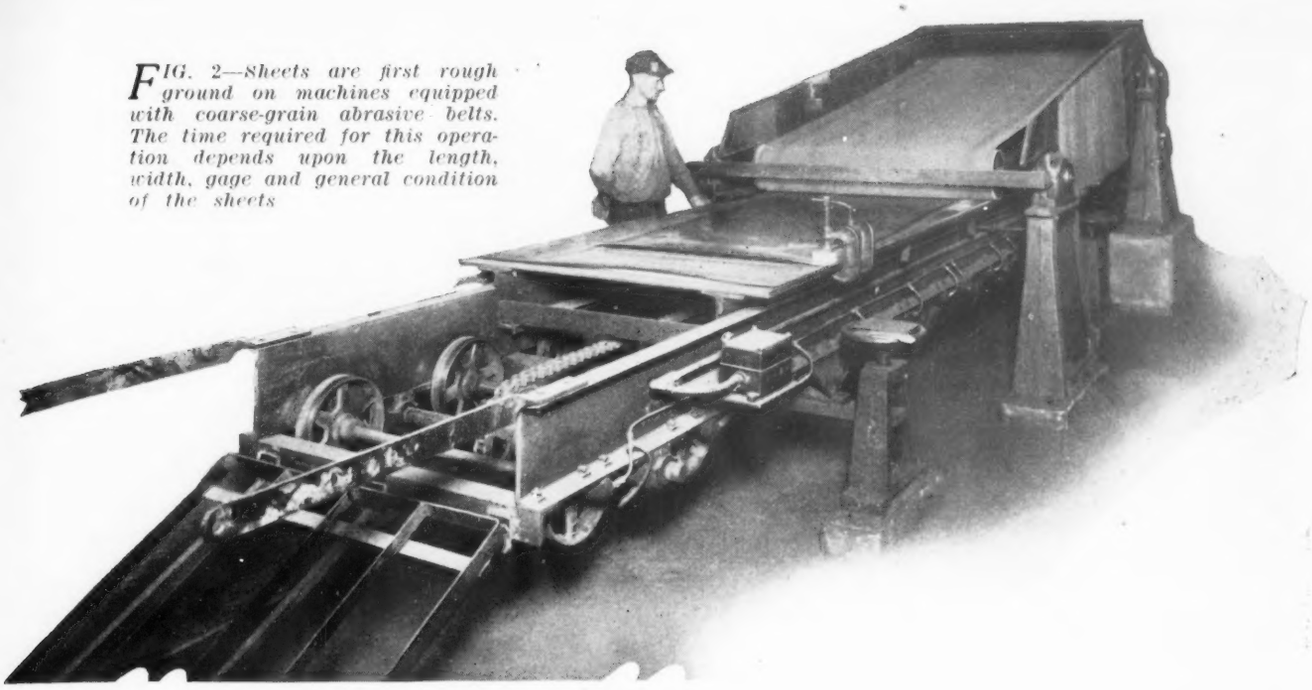


FIG. 2—Sheets are first rough ground on machines equipped with coarse-grain abrasive belts. The time required for this operation depends upon the length, width, gage and general condition of the sheets

New Plant Can Polish 30 Tons of Chrome-Nickel Sheets Daily

By E. F. Ross

Associate Editor, STEEL

CHROME-NICKEL corrosion-resisting steel, commonly known as 18-8, is finding many applications for which steel had not been considered a suitable material. In serving these new purposes, demand for the metal in all its finished forms has increased sharply, the most notable growth in demand being for sheets in highly polished condition. Designated as Nirosta KA2, an abbreviation for Krupp Austenitic No. 2, the alloy contains 17-20 per cent chromium, 7-10 per cent nickel, carbon under 0.16, manganese under 0.50, silicon over 0.50, and phosphorus and sulphur each with a maximum of 0.025 per cent.

For many purposes requiring resistance to corrosion, this alloy is found entirely suitable. Austenitic in structure and nonmagnetic when properly treated, it can be welded, worked, machined and formed. Although the steel was developed in Germany by the Krupp interests, one of the first companies to secure a license to produce and roll it in America was the Central Alloy Steel Corp., now the Republic Steel Corp., Massillon, O., and for nearly two years this company has made 18-8 at its South division in Canton, O., supplying the trade with sheets in polished form.

As the demand increased, the Republic company found its polishing facilities in Canton inadequate, consequently early this year it purchased from the American Stamping & Enameling Co. an extensive modern factory building situated on property adjacent to its Massillon plant and immediately began to install equipment for large-scale polishing operations. On April 15, the new plant was placed in production. Chrome-nickel steel is manufactured and rolled into sheets in the Canton plant and the product in annealed and pickled condition is transported by truck to Massillon. Here the sheets are piled according to purchase order in a warehouse comprising one unit of the plant. Grinding and polishing equipment has capacity to handle normally

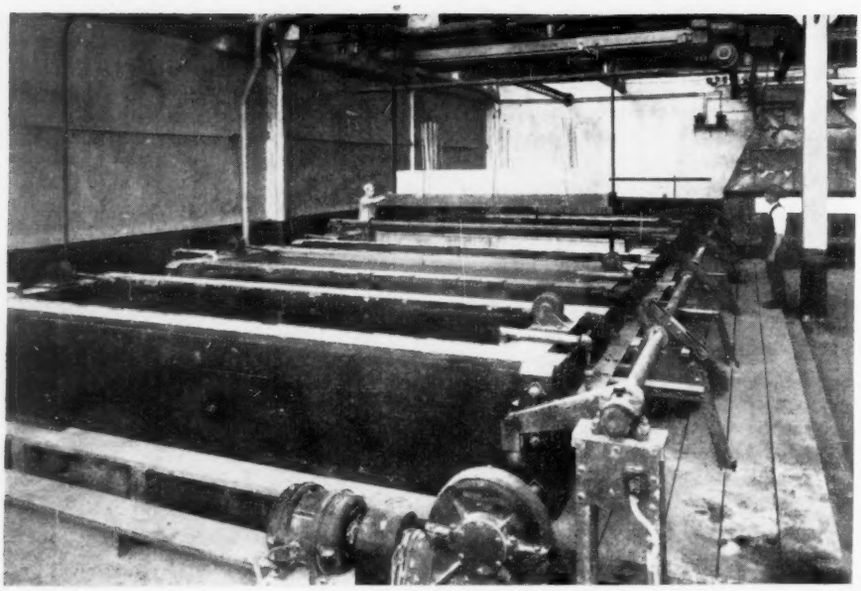


Fig. 3—When polishing operations have been completed, the sheets are pickled for 30 minutes in welded chrome-nickel steel tanks

sheets 60 inches wide and 168 inches long in thickness from 25 gage down to ¼-inch plate. For special orders, however, it is possible to polish sheets up to 66 inches wide and well over 200 inches long.

The sheets first pass into the rough grinding department in which are 28 machines built by the Metal Finisher's Machine Co., Cleveland. This department is shown in Figs. 2 and 4. Each machine consists of a reversing table running on wheels or idlers and chain driven from a variable-speed electric motor. The grinding mechanism is mounted in a frame under which the table passes and comprises an inclined abrasive belt either 50 or 60 inches wide and 20 feet in circumference running on two 6-inch diameter rollers. The upper roller, designated the pulley roller, is of wood and is belt driven from a variable-speed motor. The other roller, known as the polishing roller, is made up of a series of fabric disks tightly compressed on an arbor.

It is immediately under the polishing roller that grinding is performed, the pressure between the abrasive belt and sheet being varied by raising or lowering the table. The sheet is clamped to the table at the end first passing under the belt. The average belt speed is between 1400 and 1650 surface feet per minute, although this figure must be adjusted according to the width of the sheet and belt friction to prevent burning. An 80-grit abrasive is employed for all rough grinding and the time required will depend upon the length, width, gage and general condition of the sheet. When a satisfactory surface has been obtained, the sheet is inspected for finish and gage before it is removed from the table. It is of interest to note that the grinding machines are equipped with centralized lubrication. The grinding head, table, wheels and other moving parts are lubricated once each day by pushing a plunger.

Sheets May Be Piled

Having satisfactorily passed inspection, the sheets are transferred by small trucks and tractor to the polishing department, shown in Fig. 5, although for some orders it is necessary first to perform roller leveling and stretching operations. At this stage the sheets can be piled without fear of their becoming scratched or marred. In the finishing department are provided 14 polishing machines of a type designed and built by the Republic organization. These machines differ from the rough grinders in that polishing is performed by a single roll 18 inches in diameter and coated with abrasive of grades ranging from 100 up to 220 grit, depending upon the surface finish

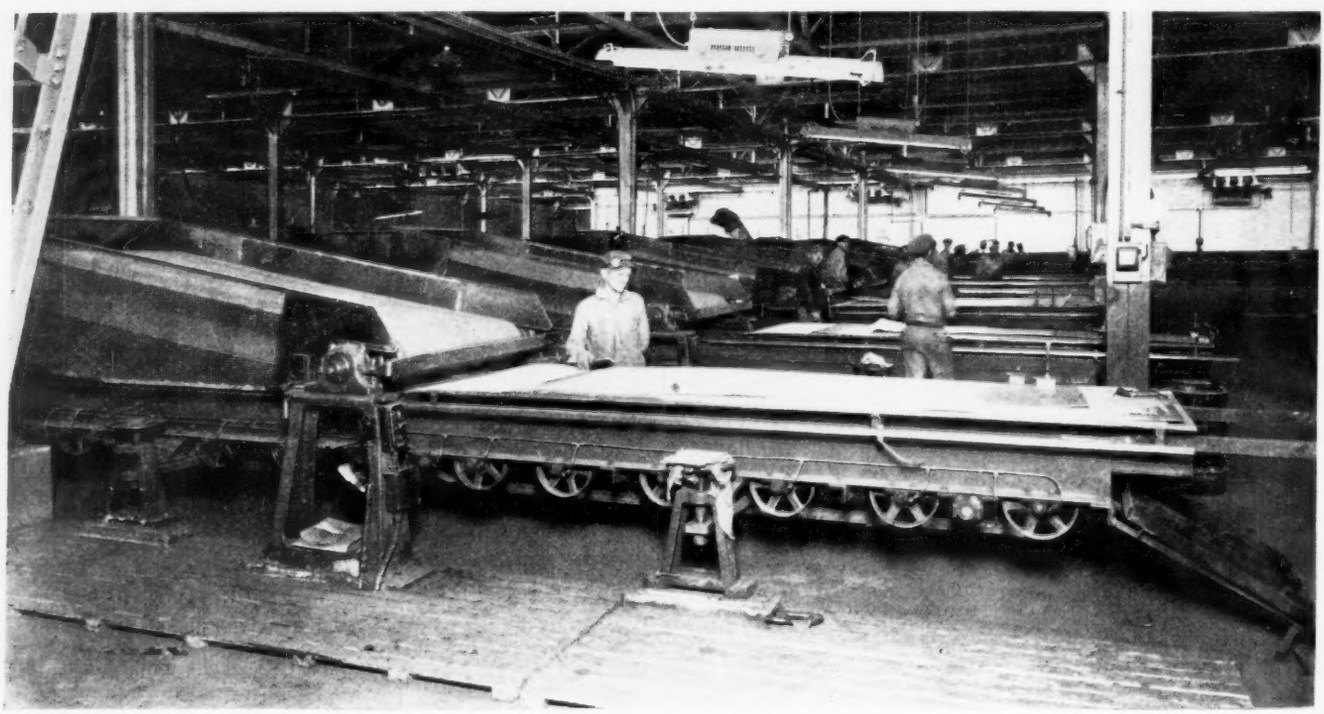


Fig. 4—A general view in the rough polishing department where the 18-8 sheets are given their first grinding on one of 28 machines

desired. This roll, running approximately 350 revolutions per minute, is flexible rope driven from a variable-speed motor. Immediately below the polishing roll is a 3-inch diameter back-up roll and the sheet to be polished supported on a rider sheet is pushed between the two rolls by a hydraulic mechanism.

To increase or decrease the pressure between the rolls, the back-up roll can be adjusted up or down, the pressure exerted by this roll being maintained constant by a hydraulic device. A feature of these machines is that the frames supporting the polishing roller and motor can be oscillated sidewise through an arc of 1 to 4 inches and at various speeds as desired. Tallow stick grease in small amounts is smeared on the sheet between passes to facilitate polishing.

The most common finishes given to 18-8 sheets are designated as No. 4, a polish on one side only, and No. 5, a polish on both sides. Numerous special finishes can be supplied also, one of these being Tampico fiber brush, a silver gray luster. This is obtained by first highly polishing the sheet, then polishing it on another machine, the roll of which is a series of Tampico fiber brush wheels. The polishing compound in this case consists of four parts of No. F powdered pumice, one part of selected lime, four parts of light lubricating oil and one part kerosene. Another special finish of dull texture is obtained by using a roll made up of a series of wire disk brushes. In this case no lubricant or polishing compound is employed.

When the polishing operations have been completed, the sheets are cleaned thoroughly by rubbing down with whiting. An inspection is made for width, length, gage and finish and the sheets are trimmed to size. Sheets which when fabricated will not be exposed to the weather corrosion now are boxed for shipment. The crates are of solid type and are packed up to 300 pounds gross weight. Extreme care must be taken that the polished surfaces do not become scratched or marred, thus the sheets are placed in the crates with polished surfaces facing each other but separated by two sheets of fawn skin paper. To prevent slipping endwise or sidewise in the crate, the compartments are constructed to close dimensions.

Some Sheets Pickled

Sheets which are intended for exterior use and must resist atmospheric corrosion are required to be subjected to a pickling treatment to remove all ferrous metal which might have become imbedded in the surface during rolling, polishing or shearing. If this precaution is not taken, rust or corrosion spots are likely to develop when the fabricated sheet is in service. From the trimming shear the sheets are set on edge on trucks and so separated that polished surfaces can not become damaged. In this manner they are moved to the pickling department shown in Fig. 3.

Here the first operation is to hone the four edges of each sheet with a hand stone and again to clean the surface by a rub down with whiting. Before pickling the sheets must be absolutely free from dust and grease, otherwise the action of the pickling acid will be retarded. Next sheets, 16 at one time but well separated, are loaded on edge in a chrome-nickel steel rack and immersed by an overhead hoist into a tank of hot water for additional cleansing. The rack is lifted at once and immersed in a bath of 20-25 per cent nitric acid maintained by steam coils at a temperature of about 130 degrees Fahr. In this the sheets remain for 30 minutes to assure complete action of the acid, after which they are dipped into a cold rinse tank to wash off the acid. From the rack, the sheets are placed one at a time on the wooden drying rack, shown at the right rear in Fig. 3, and are dried thoroughly under a blast of warm air. All five of the tanks in the pickling department are made of welded 18-8 corrosion and acid resisting steel, as is all equipment which comes in contact with the acid.

After pickling treatment, sheets of No. 4 or No. 5 finish are boxed for shipment, Tampico finished sheets, however, are returned to the polishing room for a few wiping passes

(*Concluded on Page 58*)

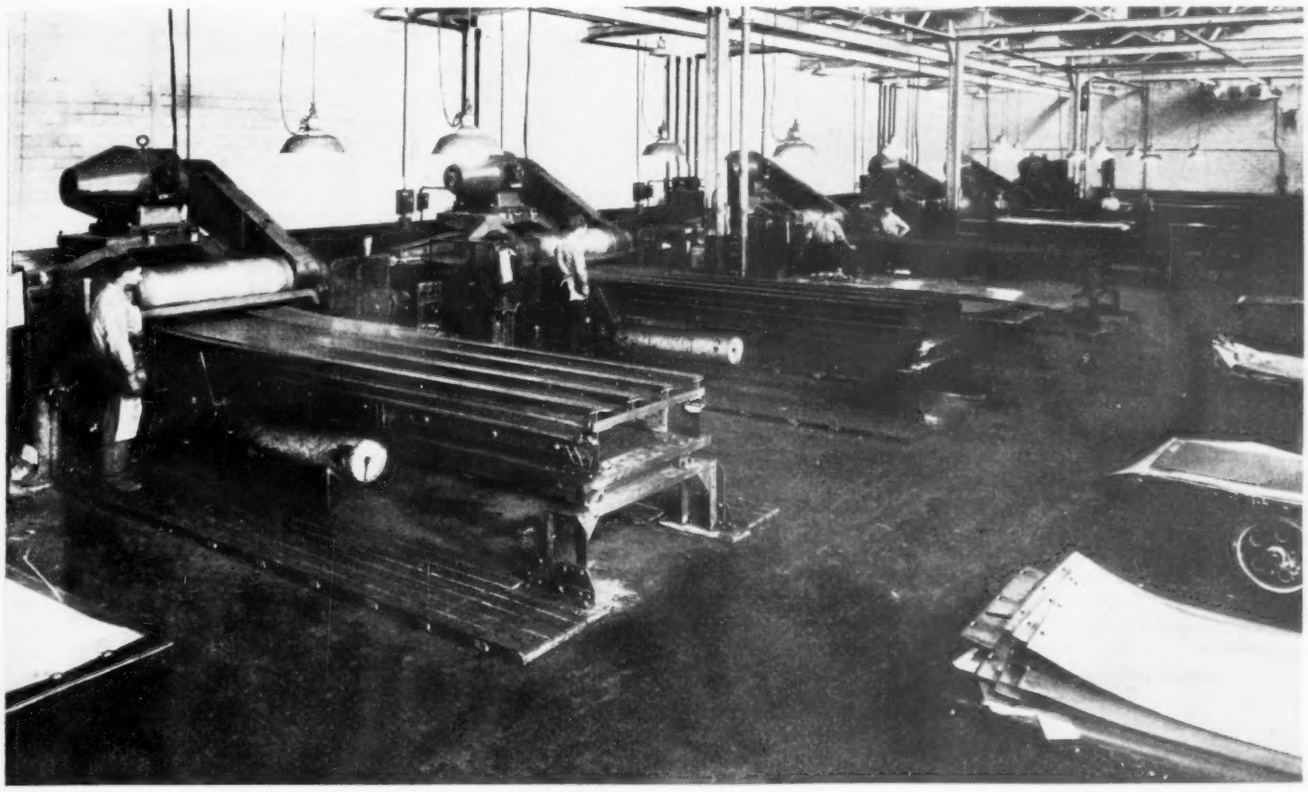


Fig. 5—Fourteen polishing machines equipped with oscillating rolls are employed to give the final polish to the sheets

Weld Defects Are Detected by Stethoscope Tests

INCREASING application of oxwelding as a production method has served to focus attention on the importance of testing. Development of procedure control has had the effect of still further increasing this emphasis, as testing is one of the six major points in procedure control.

The desirability of having a nondestructive test which could be applied to welds in finished products has long been recognized. In the case of pressure vessels, piping systems, and other welded products of similar nature, it is possible to determine the quality of the workmanship by applying a suitable pressure test. For other types of welded products and particularly in the case of welds in structural steel, the pressure test is, of course, not applicable, and until recently there has been no test that could be applied satisfactorily.

Tests Not Required

While it is recognized by those familiar with modern welding practices that welds produced under procedure control are of such quality that they do not necessarily require testing after completion, there is a definite demand for a suitable testing method on the part of users of the process.

This subject has been studied carefully by the Union Carbide & Carbon Research laboratories, Long Island City, N. Y., and an interesting nondestructive test has been developed as a result of these investigations. These tests are described and discussed in a recent issue of *Oxyacetylene Tips*, published by the Linde Air Products Co., New York.

Nondestructive Test Sought

In searching for a nondestructive test of welds, the use of sound transmission or sound characteristics of the joint as affected by discontinuities and irregularities was investigated. It is known that the presence of a serious defect in a vessel often can be determined by its ring. The village blacksmith used this principle when he hammered metal cold on the anvil to test it by ring. In sounding a tank, however, there are a great many difficulties to be encountered due to the forced and natural vibrations of the tank and the tendency for the natural vibration to drown out all other sound. It was found that the stethoscope could be used to overcome these difficulties. The instrument consists of the ordinary physician's apparatus, with a gum rubber tip to exclude extraneous sounds and give contact on the irregular surface of the plate, as well as to minimize damping of the oscillations at the contact of stethoscope and metal. The tank, pipe or plate in question is struck with a small hammer at the spot to be tested. The weight of the hammer and force of the blow depend upon the thickness of the plate, and the stethoscope is applied to the piece being tested in the general vicinity of the striking zone.

The sound heard at the instant of first tapping the joint is critical and is a function of the character of the material at the spot struck. Shortly after the tapping, the waves are reflected and the sound picked up by the stethoscope becomes a composite of the natural vibration of the tank as a whole and the forced vibration of the material immediately under the striking hammer. When the defect is serious, however, it has a damping effect on the total sound, so that its presence is also clearly evident in the after ring. The problem is analogous to that encountered in the well-established method of testing staybolts by noting the character of the sound on striking. Testing staybolts in this way has proved to be extremely satisfactory.

Sounds Are Characteristic

Each welded structure has a characteristic sound. After this is determined by brief preliminary tests, the striking hammer and stethoscope are moved along the weld so that any irregularities are discernible. The method has been applied to welds in pipes and pressure vessels, to a number of specially made welds in plate and to welded structural steel joints. The latter were made with intentional defects unknown to the persons making the test, and in each case the locations of the defects were correctly determined by the use of the stethoscope. Two large size tanks were tested with the stethoscope and no defects noted in the longitudinal or girth seams. In the case of one of these tanks, the acceptance hydrostatic pressure test failed to show any defects. In the case of the other tank, which was tested to destruction, failure took place outside of the weld.

The nature of the defects located by the stethoscope is of decided interest. Lack of fusion, particularly at the bottom of a vee or along the scarf, gives a characteristic reedy, high pitch, initial note. In many instances, the points at which welding was started and stopped and where tacks have been made are also discernible with the stethoscope, but the characteristic tone is such that these points are readily different from lack of fusion. It was found that different individuals were able to check each other in a most satisfactory manner in the testing of welded plates, pipes, pressure vessels and welded structural joints.

In applying the stethoscope, it is necessary to hold the end of the main tube firmly against the plate so

TESTING the weld on a small steel pressure vessel with the use of a stethoscope to detect the presence of defects by the resultant ring of the tank

that sounds from the plate only are heard. The stethoscope may be applied on any part of the structure near the point struck, but it is advisable to hold the instrument in one position as long as convenient, as this tends to accentuate differences in sound.

Usually the hammer is struck directly on the surface of the weld, but striking within 1 inch of the weld on either side gives good results. The force of the blow need not be constant, but may be varied to suit the thickness of the plate and the sensitivity of the ear of the operator. The characteristic reedy tone of a defect is sufficiently different from that of a satisfactory spot so that anyone with normal hearing and a little experience can readily detect the difference. Special attention must be given to the sound that is heard just as the hammer hits. A number of different quality sounds are heard, but the tester is able to eliminate the irrelevant sounds in his ear and concentrate his attention on the proper ones.

Application of the stethoscope is a development of the familiar method of testing the soundness of a metal part by the ring when struck with a hammer or sledge. Welders have quite frequently tested large welded castings by suspending them and noting the clearness of the sound produced when struck with a hammer.

The stethoscope can be applied to plate, pressure vessels, pipe joints, structural steel joints or other welded products with equal facility. It is interesting to note that a parallel study at the same resarch laboratories has also developed an X-ray method whereby the actual strength of the weld at the defective point as indicated by the stethoscope can be estimated to within 3000 pounds per square inch. The entire investigation thus forms a most important contribution on the subject of weld testing.

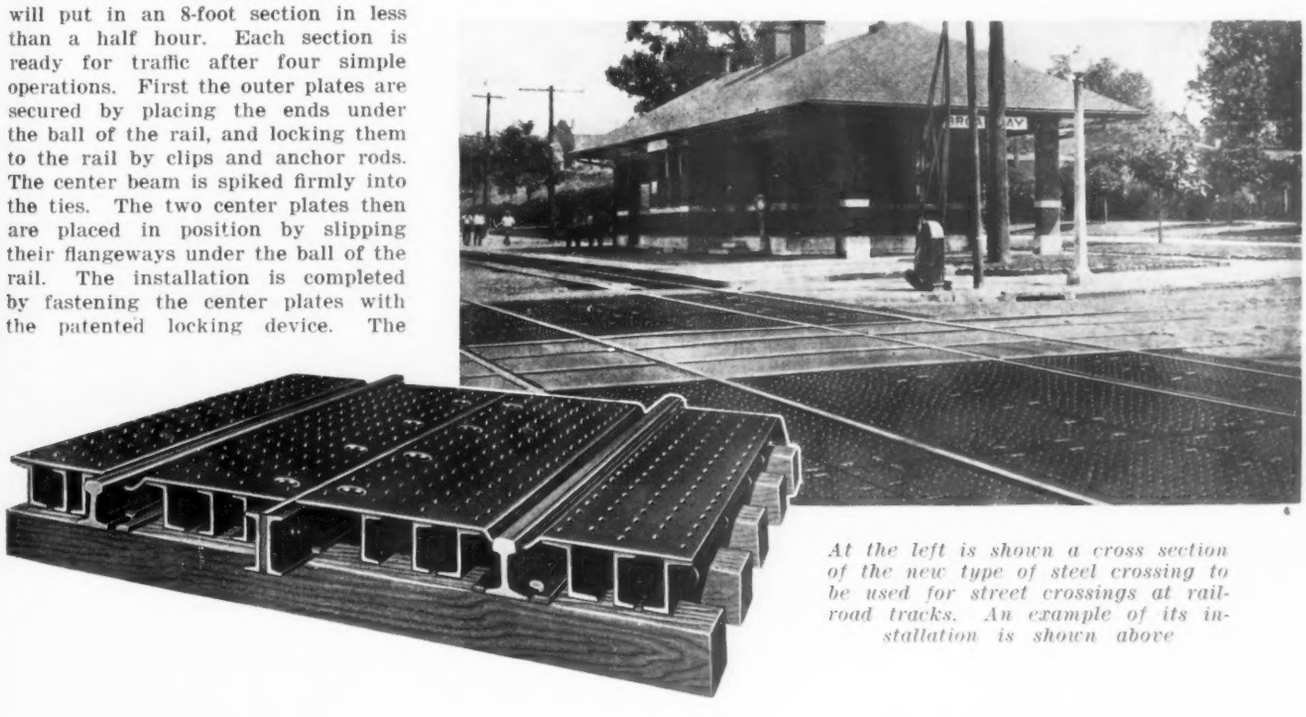
Steel Crossings Minimize Maintenance Costs

A HIGHWAY crossing made entirely of steel and designed to withstand the heaviest traffic loads indefintely, has been placed on the market by Joseph T. Ryerson & Son Inc., Chicago.

A unique feature of the unit, which is made of ¼-inch steel plates firmly riveted to steel channels and zees, is the ease of installation. Four men will put in an 8-foot section in less than a half hour. Each section is ready for traffic after four simple operations. First the outer plates are secured by placing the ends under the ball of the rail, and locking them to the rail by clips and anchor rods. The center beam is spiked firmly into the ties. The two center plates then are placed in position by slipping their flangeways under the ball of the rail. The installation is completed by fastening the center plates with the patented locking device. The crossing thus is held rigidly in place regardless of any traffic strain which is imposed upon it.

Where installation requires two rails to be electrically insulated from each other, two rolled-steel channels are bolted together with a 1-inch creosoted wood strip between. The bolts are provided with fiber bushings and washers. These bolted channels then are spiked midway between the rails in place of the center I-beam. The ends of the crossing are bent downward to the ground to prevent dangling chains or air hose from catching in the crossing. Ample circulation of air insures against rotting of the ties.

The all-steel crossing permits traffic to travel over one section uninterrupted while the other sections are being installed. Where track or tie repairs are necessary, one section may be removed at a time in the same manner. The plates have a tread which prevents skidding. They are on an exact level with the tracks and highway, making the entire crossing a smooth riding surface. The motorist encounters no bumps. During winter months the crossing itself usually is clear, since snow does not tend to cling to the cold steel surface of the plates.



At the left is shown a cross section of the new type of steel crossing to be used for street crossings at railroad tracks. An example of its installation is shown above

Chicago Group Will Discuss Coke Plant Construction

A comprehensive discussion of the design and construction of a coke plant, with auxiliary equipment, to be operated in connection with iron and steel production will be the principal topic considered by the Chicago Blast Furnace and Coke association at its fall meeting Nov. 25. At the spring meeting the association discussed the lay-out of a model 1000-ton blast furnace unit, and the meeting on the coke plant will supplement this. On July 22 the association conducted its annual gold tournament at Coghill Golf and Country club, Chicago.

LARGE USES OF STEEL IN SMALL WAYS

◆

171st Article

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One of the large bell buoys used by the department of commerce for lighthouse service work

Bell Buoys of Steel Protect Life and Property at Sea

STEEL performs a valuable service for the twenty billion dollars worth of shipping every year in American waters. Practically all the vessels carrying this freight and the five million or more passengers are guided at some stage in their journeys by bell buoys. The number in use, including all types of buoys, is 1093, and the amount of steel consumed each year in building new ones is about 800 tons.

Buoys Are Indispensable

These figures seem small, when the safety they afford ships, passengers and freight is considered. Though the buoys generally are auxiliaries to light houses and stationary signal systems, they nevertheless are indispensable. Practically all of them are built and installed under government supervision, so their number and weight are known. Few buoys requiring sizable tonnages of steel are placed by private interests, for wherever navigation involves a risk the government assumes the responsibility.

An iron ore boat, built of steel and with 10,000 tons of ore in its hold, slips away from an upper lake dock for a thousand-mile journey down the lakes. Out of the harbor, and just ahead beckoning it on its way is a buoy, the bell clanging as the waves lift and tilt it, its light flashing all night. Then another, and another appears until the vessel is far out in deep water. Down through the rivers, bell buoys, one after another keep the vessel in its path. From one end of the Great Lakes to the other, along the navigable rivers and coast lines, wherever there is a hazard bell buoys render this service. In no other way perhaps does such a small amount of steel accomplish such an important purpose.

No other material has been found to withstand so well the battering of waves and the corrosive action of salt water as steel, riveted or welded, and well painted. The government buys about 486 buoys each year, to replace others or extend the system. All buoys are taken out of service for a time each year, for inspection, repairs and painting. The government has at all times in use 250 bell buoys; 267 gas operated and bell buoys, and 576 gas-lighted bell buoys. The buoys range in size from 2 feet to 9 feet in diameter, and 7 feet to 39 feet in length. Open-hearth steel is used, in the form of plates 3/16 to 3/8-inch thick. Some flange steel is used in the upper structures of the larger size of buoys, as shown in the accompanying illustration.

The buoys are built to government specifications, and both riveting and welding are employed in their fabrication. The average number of buoys built each year, 486, includes 369 of a type designated by government engineers as "special," the weight of which ranges from 670 to 2145 pounds. These buoys are welded; all the others are riveted.

A heavy ball is fastened to the base of each buoy to keep it upright, and a ring is imbedded in the ball for fastening it to chain and anchor. The ball is made of iron, except that used on the special type of buoy, which is cast steel. The weight of this steel is included in the total tonnage consumed.

Berresford Receives Medal

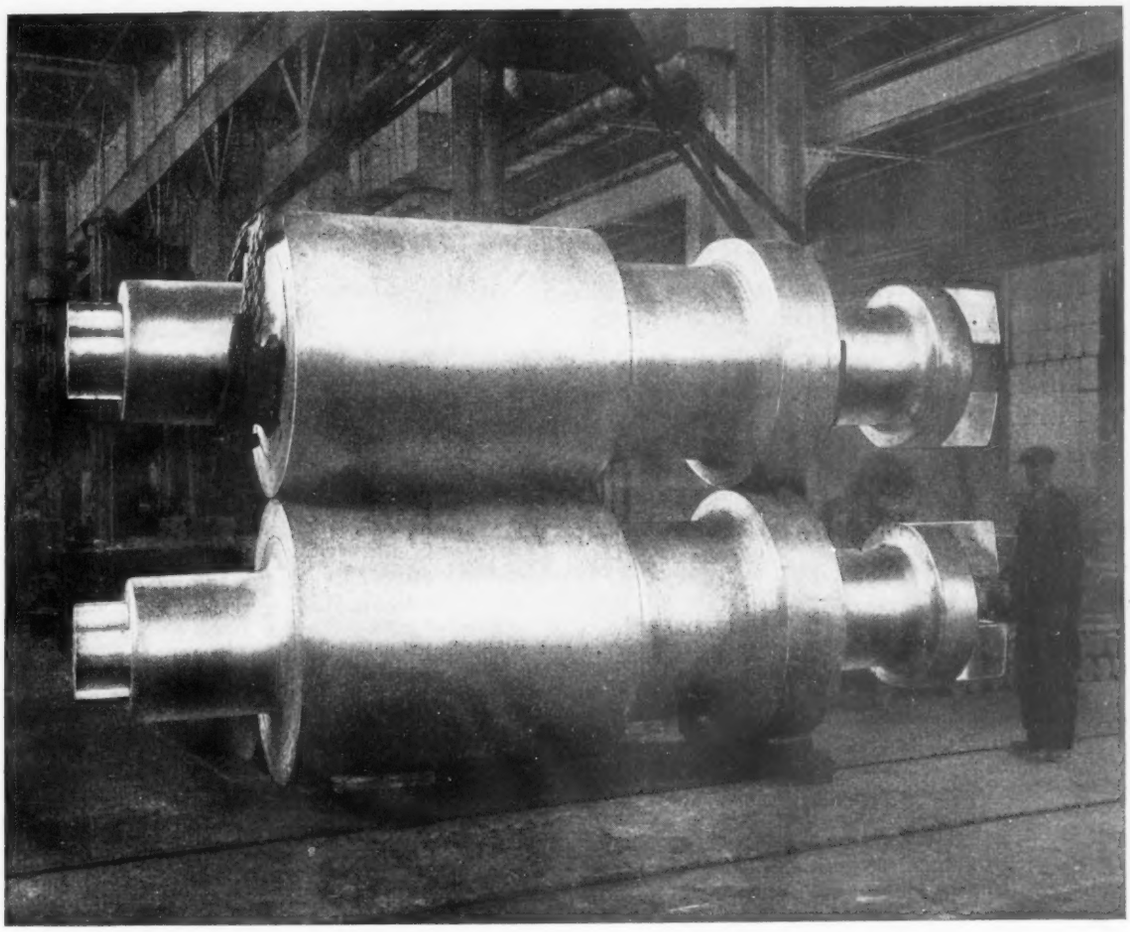
A gold bronze medal, the first prize in the annual Phebe Hobson Fowler professional award, was bestowed on Arthur W. Berresford of New York, at the sixtieth annual convention of the American Society of Civil Engineers in Cleveland, July 9-12. The award was made "in recognition of his particularly efficient administration of the American Engineering council during the two years of his incumbency as its president." The Phebe Hobson Fowler awards were established by Charles Evans Fowler, a consulting engineer, in memory of his mother.

Mr. Berresford, who was born in Brooklyn, N. Y., in 1872, is a graduate of Brooklyn Polytechnic institute and of Cornell university. Between 1900 and 1923 he rose to be vice president and general manager of the Cutler-Hammer Mfg. Co., Milwaukee. Since retiring as head of the council on Dec. 31, he has been managing director of the National Electrical Manufacturers' association.

Commemorates Anniversary

A souvenir brochure commemorating the seventy-fifth anniversary of the founding to its Gruson works is being distributed by Fried. Krupp, Magdeburg, Germany. The introductory remarks covering the first six pages are devoted to a resume of the early undertaking of Hermann Gruson in establishing his foundries, of the intense competition between his company and Krupps, and finally of the merger of the two concerns. The remaining 54 pages comprise illustrations and detailed descriptions of the miscellaneous machinery produced.

World's Largest Blooming Mill Rolls Recently Made by Mesta



57" diameter, 120" body length, 18'-3½" total length. Weight in Rough 105,000 lbs. each.

Mesta

Mesta Machine Company
Pittsburgh, Penna.

New Chromium Steel Contains Zirconium Sulphide

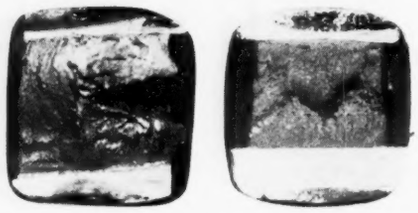
BY F. R. PALMER

Assistant to President, Carpenter Steel Co.

CORROSION-RESISTING steel is attracting much attention, to a certain extent because of its economic advantages. While the initial cost of corrosion-resisting steels is considerably more than the cost of ordinary steels, yet their purchase price is a definite and fixed quantity that can be included accurately in cost estimates. On the other hand, the costs of fabricating and finishing these special steels are not so easily determined and recently have received considerable attention.

About two years ago, the Carpenter Steel Co., Reading, Pa., discovered that the addition of about 0.40 per cent zirconium sulphide to a corrosion-resisting steel would permit it to be machined, ground and polished with approximately the same facility as commercial screw stock. Subsequently the company placed on the market a corrosion-resisting grade under the trade name of Carpenter Stainless No. 5 steel, which nominally contains 0.10 per cent carbon, 14 per cent chromium and 0.40 per cent zirconium sulphide.

This will be recognized as a standard type analysis, differing only from the material variously called stainless iron, stainless steel, chromium iron, corrosion-resisting steel, rustless iron, etc., in the zirconium sulphide content. Since the manufacturer of this particular grade has elected to call it a "steel," it will be so termed in this article. Zirconium sulphide is a new ingredient in alloy steels, its development making possible savings ranging up to 50 per cent of total finishing costs.



Sample of 14 per cent chromium steel containing zirconium sulphide. View at the left shows fracture before heat treating; view at the right shows the fracture after 8 hours soaking at 1825 degrees Fahr.

A survey made recently among screw-machine shops shows that this grade of steel is being machined at surface speeds up to 150 feet a minute; the average production speed is about 125 feet a minute. Machining data on a screw-machine part, a 7/16-inch cap screw and electric clock parts, all of this special corrosion-resisting steel, follow:

Screw-machine part

1-inch round No. 5 steel, annealed

Spindle speed, r.p.m.	438
Die speed, r.p.m.	164
Feed, first box, inches	0.007
Feed, second box, inches	3.005
Feed, cut-off and breakdown, inches	0.0016

7/16-inch cap screw

⅝-inch hexagon No. 5 steel, cold drawn

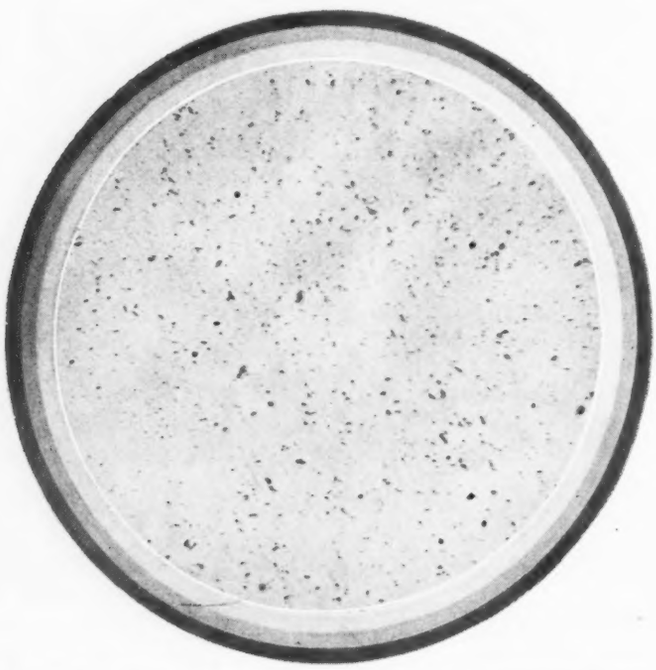
Automatic machine	⅞-inch Gridley
Spindle speed, r.p.m.	500
Feed, box inches	0.0095
Time per piece, seconds	30.0

Electric clock parts

No. 5 steel

Part	Size of round, inches	Spindle speed r.p.m.	Output per hour
Fourth time staff	0.161	5000	51
Governor sleeve	0.375	.....	100
Forward	.....	244	.....
Backward	.....	1207	.....
No. 1 x 72 screw	0.106	3600	480

The effect of zirconium sulphide on the grinding properties of a corrosion-resisting steel can best be explained by reference to an accompanying illustration which shows magnified chips cut from a stainless steel containing no zirconium sulphide and from the No. 5 steel. The large chunks of metal in the straight chromium product were torn from the work or accumulated by the wheel. The uniform clean-cut chips



Photomicrograph of free machining corrosion-resisting steel, unetched, showing distribution of zirconium sulphide. X200

◆

RECENT experiments have determined that the addition of about 0.40 per cent of zirconium sulphide to a 14 per cent chromium steel of the corrosion-resisting type facilitates the machining, grinding and polishing of the steel practically to the extent of commercial screw stock. The accompanying article describes, tabulates and illustrates some of the properties brought about by the addition of the sulphide to this type of steel. The author, F. R. Palmer, is assistant to the president, Carpenter Steel Co., Reading, Pa.

◆

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

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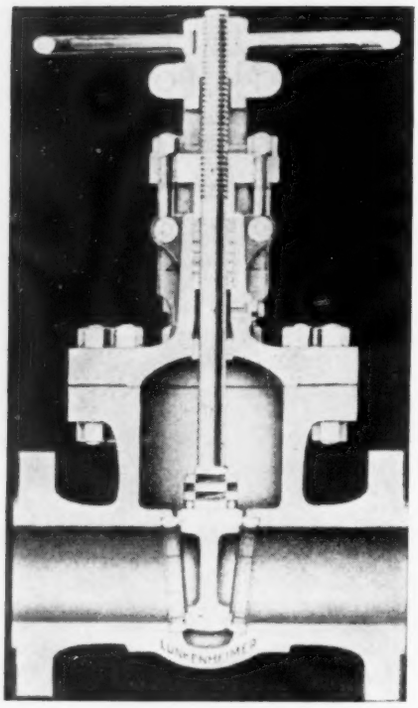


Section of a steel gate valve; disk ring, seat ring and stem all of special corrosion resisting steel with zirconium sulphide

from the No. 5 steel almost suggest fine-turnings. These chips were produced on a reciprocating surface grinder using a 36-grain wheel at 4200 surface feet per minute speed.

In order to show how this difference in grinding properties reflects on shop costs, it is interesting to quote figures obtained while experimenting with various types of abrasives for cutting stainless steels of the following analyses:

Element	Regular stainless steel, per cent	No. 5 stainless steel, per cent
Carbon	0.09	0.08
Chromium	13.70	14.12
Zirconium sulphide		0.41

On a rotary surface grinder, using 14 x 1 x 5-inch wheels, the abrasive satisfactory for both steels was found to be a carborundum vitrified wheel 365-M-B3. The average work done on each wheel dressing follows:

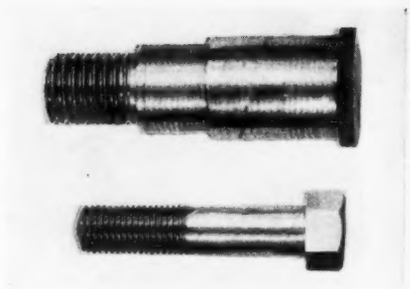
	Regular stainless steel	No. 5 stainless steel
Depth of cut, inches	0.0005 to 0.0010	0.001 to 0.0015
Total stock removed, inches	0.015	0.026
Wheel wear, inches	0.004	0.001
Area ground, sq. in.	48	48

Corrosion resisting steel containing zirconium sulphide is being used extensively for all sorts of pump shafts for pumping milk, oil, gasoline, mine water, and other mildly corrosive liquids; for bolts, nuts and screws; golf clubs; shafts, pinions and other parts on the mechanism of fire alarm boxes, electric clocks, water meters, etc.; and for a wide assortment of parts in washing machines, cameras, electrical apparatus, carburetors, bottling machinery, refrigerators, thermostats, heat regulators, auxiliary steam handling equipment, etc. Accompanying illustrations show a few of these parts.

Steel Is Nongalling

The No. 5 steel has been approved by the Underwriters' Laboratories Inc., Chicago, for use in equipment handling gasoline, and is working out successfully for pump shafts and other parts of the apparatus involving machine work. The nongalling properties make the steel extremely desirable for seats, disks, stems, bonnet nuts and other mountings for high-pressure, high-temperature gate valves. The corrosion resistance is satisfactory for either hot oil or steam and since the steel shows no tendency whatever to embrittlement or grain growth on prolonged use at elevated temperatures, it fulfills all of the requirements for a satisfactory valve trim.

No claims are made for additional corrosion resistance because of the zirconium sulphide addition. The use of zirconium sulphide in steel intended for sheets, plates, or cold-rolled strip is not recommended because of the fact that the steel does not respond well in these forms to deep drawing or forming operations. The straight chromium product without zirconium sulphide has proved so satisfactory for stampings that there is no reason to consider a special type for this purpose. The function of the No. 5 steel is to replace ordinary corrosion-resisting steel wherever machining, grinding, or polishing operations afford opportunity for saving, or where service conditions are such as to cause galling, scratching, or seizing. The steel is available in hot-rolled and cold-drawn bars, ground and polished shafting, cold-drawn wire for cold heading, and for drop forgings.



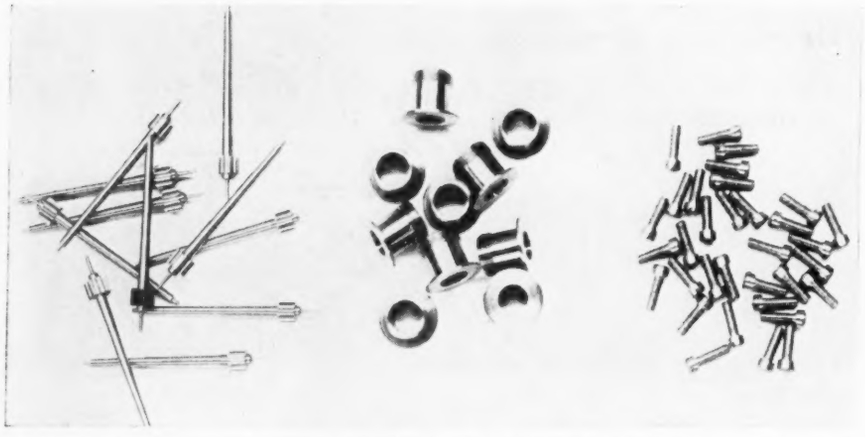
Two small parts made from corrosion-resisting steel containing zirconium sulphide; above, a screw machine part, and below, a 7/16-inch cap screw

How Billets Are Treated

The No. 5 steel is hammered or drop forged readily. The billets are heated from 2000 to 2100 degrees Fahr., soaked for ample time to soften them thoroughly, and then drop forged as rapidly as possible before the temperature has fallen too far. A drop forging should be trimmed immediately after forging on the same heat and then can be cooled in air but must not be quenched in water. All forgings must either be annealed or heat treated to obtain satisfactory machining properties.

For best machining properties, the steel is heated from 1350 to 1400 degrees Fahr., soaked for sufficient time to heat the charge thoroughly and then cooled in air. This will give a brinell hardness of approximately 187. If the charge is cooled in the furnace, the brinell hardness will be as low as 160.

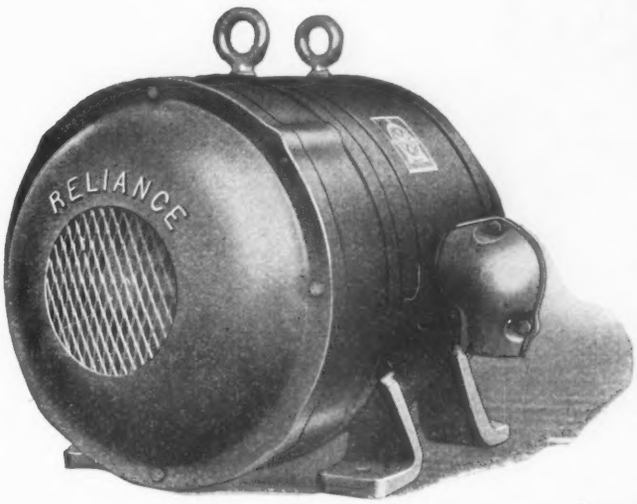
Inasmuch as heat treatment is not necessary to bring out the stainless qualities of the No. 5 steel, it is seldom heat treated. There are a few applications where higher physical properties are required and in such cases the steel is hardened by quenching in oil from 1850 degrees Fahr., followed by drawing to obtain the desired physical properties. Typical physical properties in the an-



Electric clock parts of corrosion-resisting steel containing zirconium sulphide. At the left are a number of fourth-time staffs; center, governor sleeves; right, No. 1 x 72 screws

It is Dirt-Proof . . . .

AND NO LARGER THAN AN *open* MOTOR

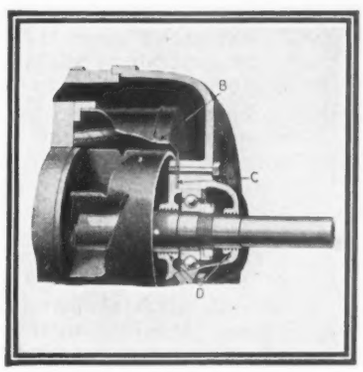


This enclosed fan-cooled Reliance Induction Motor is helping iron and steel mills reduce their maintenance. It provides at reasonable cost complete protection against the trouble-making iron dust and scale which settles on the windings and clogs the air gaps of open motors. The stator and rotor are tightly sealed so that the motor stays clean and dry inside.

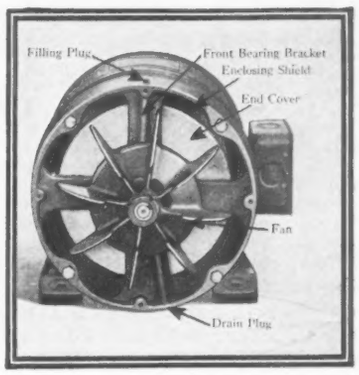
In Reliance Motors you gain these advantages without increase in size over the ordinary open motor. Enclosed fan-cooled motors up to 100 hp. 1200 r.p.m. have exactly the same mounting dimensions as our standard open motors of an equal horse-power and speed rating.

Savings in inspection and maintenance are proving substantial on many applications in steel mills and coke plants. Of more importance in most cases is the greater assurance of steady operation.

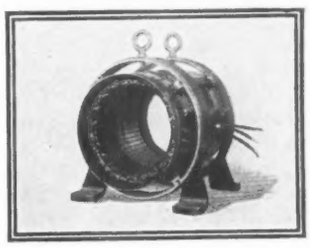
For complete details get our Bulletin 107.



1. Stationary Seals that stay tight. The fits for all enclosing parts are stationary. There are no running seals to wear and lessen the effectiveness of the enclosure. (B) Stationary machined fit between enclosing shield and end cover. (C) End cover is clamped between inner bearing cap and bracket.



2. Simplified Construction. Tight enclosure of rotor and stator, with efficient cooling, has been accomplished with few extra parts. The motors can be dismantled readily and put together again with all seals just as tight as when first assembled.



3. Steel frames for all sizes. Even in the small sizes the same substantial frame construction is used as is employed in building large motors for heavy-duty service.

RELIANCE ELECTRIC & ENGINEERING CO.

1082 Ivanhoe Road — Cleveland, Ohio

Branches: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Detroit, New York, Philadelphia, Pittsburgh, St. Louis, Toledo, Milwaukee.
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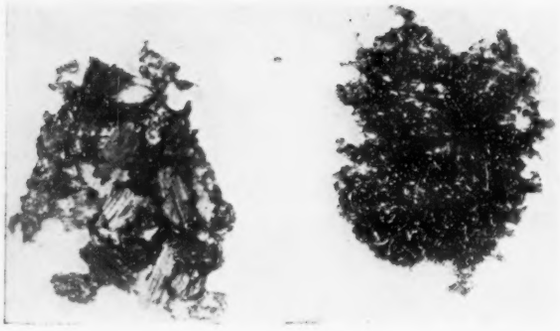
RELIANCE A-C D-C MOTORS with Ball Bearings



Grinding chips from two types of corrosion-resisting steel. (Left) Steel containing no zirconium sulphide. (Right) No. 5 stainless steel. X2½

nealed condition and in the heat-treated condition are as follows:

Properties	Annealed*	Treated**
Yield point, lbs. sq. in.	63,500	92,500
Tensile strength, lbs. sq. in.	86,400	127,000
Elongation in 2 inches, per cent	25.9	16.0
Reduction of area, per cent	58.9	38.0
Brinell hardness	187	255
Izod impact, foot-pounds	50	22
Specific gravity	7.78	
Coefficient of expansion, 68 to 1500 degrees Fahr., average	0.00000663	
Specific electrical resistance, ohms per circular mil foot at 20 degrees Cent.	390	

*Air cooled after soaking at 1400 degrees Fahr.
**Oil quenched from 1825 degrees Fahr.; drawn at 700 degrees Fahr.

The corrosion resistance of the No. 5 steel is equal to the same analysis without zirconium sulphide. It resists sea, fresh and mine water, steam, food products, carbonic acid, alkaline solutions, gasoline, blood, perspiration, alcohol, ammonia, mercury, soap and sugar solutions, and hot oil.

The steel will remain practically scale free to about 1200 degrees Fahr. and can be used for many purposes to as high as 1500 degrees Fahr. The resistance of this grade of steel to grain growth at elevated temperatures is best illustrated by the fracture sample shown in one of the illustrations. The fracture at the left shows the steel before testing and at the right the fracture after eight hours soaking at 1825 degrees Fahr. This is an accelerated test conducted at a temperature that is much beyond the useful field of the metal.

Twenty Specimens Tested

A more practical and more representative test was conducted in a temperature range where the steel might be expected to work continuously. Twenty different specimens taken from ten different melts of steel were treated to a brinell hardness of 220 to 240. Izod impact tests cut from all 20 pieces gave an average value of 40.6 foot pounds. The samples then were held in a furnace between 800 and 1000 degrees Fahr. for six months, after which impact tests again were machined from the specimens and broken. The average reading on the 20 samples was 42.7 foot pounds.

In addition to its contribution toward free machining and grinding properties, zirconium sulphide confers nongalling properties on the steel; it so lubricates the threads that galling and seizing are virtually impossible. In fact, the threads actually wear smoother as the nut repeatedly is tightened and loosened. In the same manner, the sulphide reduces scratching and galling in pump shafts.

Zirconium sulphide does not dissolve in the steel but exists in the form of millions of tiny particules uniformly distributed throughout the metal. This distribution is illustrated in an accompanying photomicrograph, which shows a cross section of the steel magnified 200 times. The nongalling properties of the steel appear to be due to the lubricating effect of these tiny particles of zirconium sulphide which evidently function in much the same manner as free graphite in cast iron.

The particular steel under consideration is of the 14 per cent chromium-iron type. While it is true that steels of higher chromium content, particularly those containing nickel, are more resistant to corrosion than the 14 per cent chromium types, yet there are many industrial applications for which the 14 per cent chromium steels will perform perfectly. The lower chrome types cost less and in many cases are more economical to fabricate. They are serving industry in a satisfactory manner, and as the possibilities of the various types become better known, an increase in their popularity will result.

Driving shaft assembly for a washing machine, the pump shaft being fabricated from No. 5 stainless steel

Wire Manufacture Is Shown in Sound Motion Picture

Combining the advantages of pictorial presentation, sounds, and oral explanations of detailed operations, one of the first successful talking industrial motion pictures has been produced by the American Steel & Wire Co., Cleveland, a subsidiary of the United States Steel Corp. The picture features a trip through the mills in which wire rope is made, the entire process becomes not only visible on the screen, but the illusion is increased by the introduction of sound.

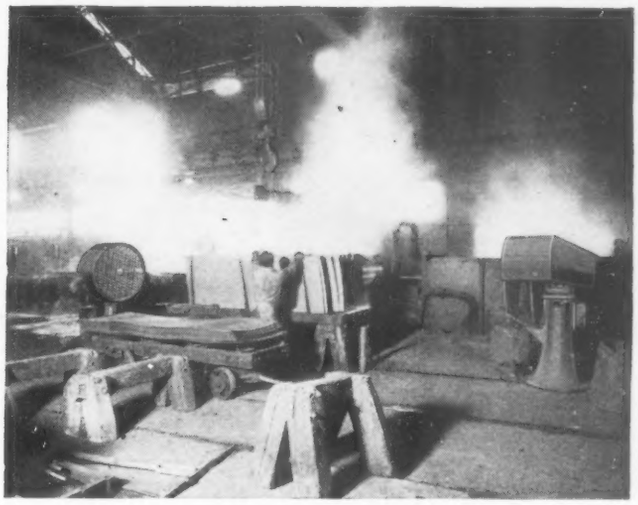
As each stage of manufacture is viewed, it is orally explained in detail. In this way many important points of interest, impossible to cover in the usual screen captions, are conveyed to the listener. An added feature is the use of music at certain spots where the action does not require explanation.

Plain and Graphite Valve Guides Added to Line

Plain and graphite valve guides now are being manufactured and marketed by Thompson Products Inc., Clarkwood road, Cleveland, being the most recent addition to the line of valves and replacement parts in which the company specializes. The guides are of chrome-nickel steel, corecast and machined. The graphite type is designed to furnish additional lubrication to the inner bearing surface to minimize valve sticking and to facilitate smooth valve action. In this type of guide a mixture of graphite is pressed into double spiral grooves in the bearing surface and in a sense makes the guide self-lubricating.

Commonwealth Heat Treating Co., Detroit, has increased its capital from $10,000 to $50,000.

No "Summer Slump" here...



2 36-inch Perkins Man Coolers in pickling department steel hoop mill

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Fig. 1—Interior of a galvanizing kettle, 26 feet long, which failed in service

FAILURE of galvanizing pots is attributed largely to the formation of dross and to the corrosive action of the zinc-iron alloys. Closely identified with the alloying action of the zinc is the heat distribution. Other causes of pot destruction were presented in the July 10 issue of STEEL. In this article, the concluding installment, the author, Wallace G. Imhoff, president, Wallace G. Imhoff Co., Vineland, N. J., cites various failures of commercial galvanizing kettles and presents the factors which lead to pot destruction.

Galvanizing Pots Destroyed by Zinc-Iron Alloys

By WALLACE G. IMHOFF
President, Wallace G. Imhoff Co.

MANY factors are involved in the formation of zinc-iron alloys which eventually cause destruction of galvanizing kettles. Fig. 1 shows a 26-foot pot which failed in practice. This pot was heated on the two sides, but not on the ends. The ends therefore may be said to have been comparatively cold with the molten zinc at galvanizing temperature in contact with them. The alloying action was not intense but it can be seen on the far end in the illustration. Fig. 2 shows one end of the kettle. The outer crust has been torn away to disclose the alloying action.

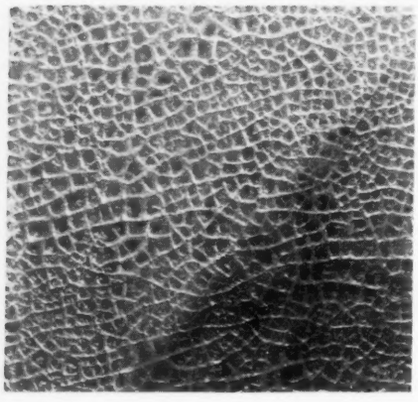

Fig. 2—A near view of the end of a galvanizing pot with outer crust removed. Alloying action of the zinc is shown by the network

The difference in temperature upon the side of the pot also is reflected in the difference in the composition of the zinc-iron alloy. For example, Fig. 5 shows three zinc-iron alloys taken from another 15-foot pot which failed in service. The piece *C* was at the top of the pot and had an iron content of 5.26 per cent. Piece *B* was a little lower down and had an iron content of 4.77 per cent. Piece *A* was down a little lower and shows the affect of the heat; it had an iron content of 6.27 per cent. Another large sample still lower down had an iron content of 8.11 per cent. This composition would correspond to the zinc-iron $FeZn_{10}$.

Heat Affects The Alloy

The difference of temperature upon the zinc-iron alloy formed is illustrated in other samples taken progressively from the top to the bottom at the point of failure in the same pot. Fig. 3 shows a piece of the zinc-iron alloy near the top of the pot. This alloy will run about 4.00 per cent iron. Fig. 4, the same alloy a little lower down, shows how the slight increase in temperature has affected the character of the alloy. The iron content of this piece would probably be close to 5 per cent. Fig. 6 shows the zinc-iron alloy still farther down. The drastic affect of the heat now is being registered. This zinc-iron alloy is just below sample *A* in Fig. 5 which analyzed 6.27 per cent iron. Attention is called to the rounded form that the zinc-iron alloy assumed. The alloying action occurred progressively from the outside toward the centers of the spherules.

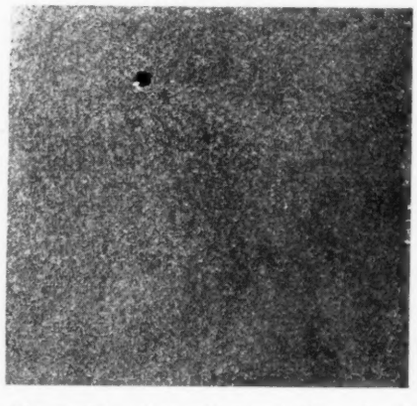

Fig. 3—Zinc-iron alloy near top of pot. This alloy contains 4 per cent iron

Fig. 7 shows the character of the alloy still farther down and in the region of still higher heat intensity. The thickness of the alloy is ¼-inch, and the spherules are beginning to assume the shape of hexagons. The middle still shows the circular rings

first seen in Fig. 6. The alloy is brittle and can be broken easily into small pieces at the boundary lines of the spherules. Fig. 9 shows the character of the zinc-iron alloy in the region of highest heat intensity just beside the point of failure of the pot. The alloy in this region is ¾

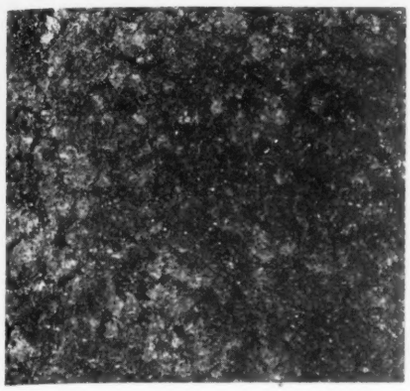

Fig. 4—Zinc-iron alloy which contains about 5 per cent iron

to ⅞-inch thick and can be broken easily at the spherule boundaries. One of these spherules contained 8.01 per cent iron which checks closely with the previous value, and corresponds to the zinc-iron alloys $FeZn_{10}$. Attention again is called to the distinct hexagonal outline of the spherules, and the rings in the center. Fig. 8 shows the final destruction of the pot. The side of this pot was made of 2-inch firebox steel. The hole was about ¾-inch across the largest

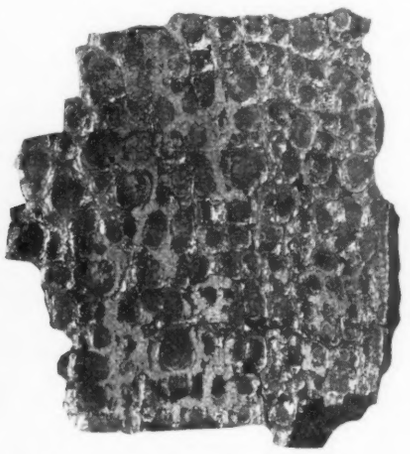

Fig. 6—Zinc-iron alloy which contains about 6 to 6½ per cent iron

dimension. Samples of dross and the zinc-iron alloy left in the bottom of the pot analyzed 4.74 per cent iron.

A factor effecting the destruction of galvanizing kettles is the property of the zinc, namely, its high degree of corrosion, alloying action, or attraction for other metals. This action is a function of the temperature, and varies directly with the temperature, that is, the higher the temperature, the greater the alloying intensity and penetrating power. Moreover, the steel increases in brittleness as the zinc alloys with it. Another factor causing the disintegration of the steel is the expansion, or increase, or swelling action due to the alloying of the zinc with the iron. Zinc expands and contracts; zinc-iron, however, does not possess these characteristics to any marked extent; it is dry and brittle.

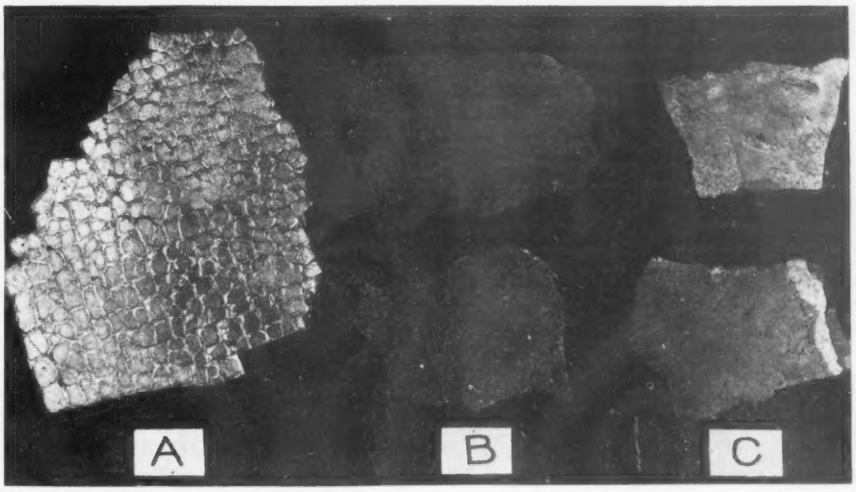

Fig. 5—Three types of zinc-iron alloys taken from a pot which failed in operation

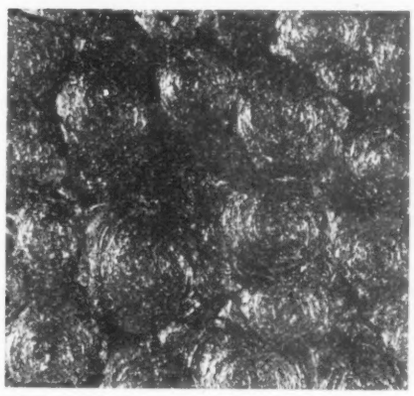

Fig. 7—Zinc-iron alloy from region of high-heat intensity. This alloy contains about 8 per cent iron

Mechanism of Destruction Shown

Fig. 10 is a part of the zinc-iron alloy from the side of the pot showing clearly the mechanism of destruction. The steel base is to the left of the illustration and outside the field of view. Close against this side is the heavy solid zinc-iron alloy shown at the left. Next is the zone of disintegration showing the breaking up of this alloy into smaller fragments, and finally at the right of the plate is the zinc bath in which the crystals float much the same as icebergs break up and finally melt.

The rapidity of disintegration is a function of the temperature. The heat currents carry off the fragments into the bath, and as new ones are formed the thickness of the side gradually is decreased and eat one away until the pot finally fails.

A summary of the facts brought out in the formation of zinc-iron alloys in galvanizing pots with the consequent failure of the kettle are as follows:

1. Production on a weight basis determines the amount of heat which must be supplied to the kettle.

2. The speed of the work or production going through the pot vitally affects the heat intensity or time element.

3. The total metal capacity of the pot in relation to the production determines whether the pot will be overheated or not. If the metal capacity is large there will be heat in reserve; if the metal capacity is small the pot will be overheated continually.

4. The area heated in relation to the total surface area available for heating purposes is important. The average area heated is perhaps 60 per cent of the total surface area. The larger the heating area the better.

5. The alloying or destructive action of the molten zinc is a function of the temperature. The higher

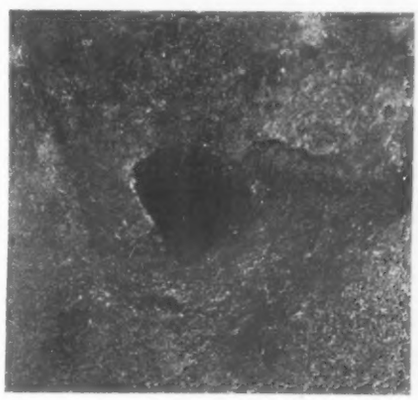

Fig. 8—Hole in the side of the pot at point of failure

the temperature the faster the alloying action takes place, and the greater the penetrating power.

6. The quantity of work submerged at one time affects the pot life by directly affecting the total heat available in the bath. Large articles, such as range boilers, do not affect the temperature greatly; pipe put in the bath in 600 to 1000-pound bundles, or 1-ton lifts cause radical changes in the temperature of the bath. Violent temperature swings are sure to give a short life.

7. Pot failure and the formation of dross, which uses up a large percentage of good zinc, stress the importance of zinc-iron alloys.

8. Pot failure shows that the zinc-iron alloy takes the shape of spherules; gradually forming outlines which are hexagon in shape. These spherules are extremely brittle, and show an iron content of about 8 per cent corresponding to the zinc-iron alloy $FeZn_{10}$.

9. Pot failure is a direct function of temperature and heat concentration.

10. The mechanism of destruction includes the intense alloying action of zinc; the penetration into the steel forming first a zinc-iron alloy which gradually increases in area until it forms spherules; when the heat intensity is sufficient the alloying action penetrates deeply into the plate and the zinc-iron alloy formed increases the size of the particles and makes them brittle; the forces of expansion and currents set up by the heat, disintegrate and break up the zinc-iron alloy which floats into the bath exposing a new deeper surface to the same action: and, continued alloying action and disintegration eventually bring about complete destruction of the pot.

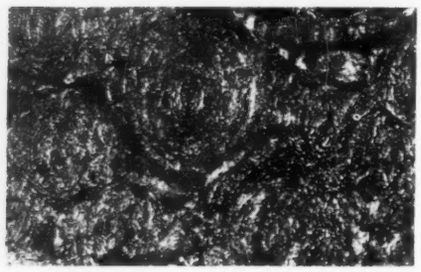

Fig. 9—Zinc-iron alloy from bottom of pot near point of failure. Actual analysis showed 8.01 per cent iron

Records Expected to Fall

Several records for capacity and size are expected to be set by two turbine generators that are being constructed by the General Electric Co., Schenectady, N. Y., for installation in the Hudson Avenue station of the Brooklyn Edison Co. Each turbine will be of tandem-compound construction, with double flow in the low-pressure cylinder, and will drive a single generator of 160,000 kilowatts capacity at 0.8 power factor with a maximum output of 200,000 kilovolt-amperes. Without auxiliaries or attachments, the combined weight of each turbine and generator will be more than 1000 tons.

Program for Metal Congress Includes Varied Topics

Technical sessions on basic problems of the steel industry as well as on advanced metallurgical work are being scheduled by the American Society for Steel Treating and organizations meeting with it for the National Metal congress to be held at Hotel Stevens, Chicago, Sept. 22-26. In addition to a session on nitriding and one on sales problems as announced on Page 58 of the July 10 issue of STEEL, the Steel Treaters are arranging meetings on corrosion-resisting metals, forgings, steel melting and carburizing. Two other sessions will be devoted to miscellaneous topics and a third to papers dealing with theoretical metallurgy.

The iron and steel division of the American Institute of Mining and Metallurgical Engineers will sponsor two sessions on the beneficiation of iron ore. A session on combustion problems and furnace design is a highlight of the program of the iron and steel division of the American Society for Mechanical Engineers. Polishing and nitriding are subjects also on this group's program.

The American Welding Society has scheduled a session on the welding of structural steel. Reports of recent researches into welding procedure will be presented at other meetings of the society whose headquarters will be at the Congress hotel.

New Plant Can Polish 30 Tons of 18-8 Steel

(*Concluded from Page 45*)

under the fiber brush to assure an extremely even finish. The same polishing compound is used as was employed in the first Tampico brushing. Upon the completion of this final operation, the sheets are cleaned with whiting and boxed for shipment.

Illumination in the rough grinding department, it is to be noted, is provided by mercury vapor lamps, it having been found that greenish-blue light best enables machine operators to observe grinding progress. The same type of lamp soon is to be installed in the polishing department.

The abrasive belts used in the grinding departments are of vulcanized rubber, on the surfaces of which are applied a coating of hot glue and the proper grade of grit heated to the same temperature as the glue. Before these belts can be removed from the rollers on which the abrasive is applied, the glue and grit must set for 8 to 10 hours, after this time they are suspended on hangers in a curing room for 24 to 48 hours. The temperature in this room is maintained uniform by a hot air blowing system. The bolts must be placed on the grinding machines within five days, otherwise the abrasive coating becomes too dry and cracks or spalls off. Belts on which the abrasive is worn down are washed to loosen the glue, the belt being suspended on on overhead roller and revolved slowly so that the lower loop skims the surface of a pan of water. When the abrasive has become sufficiently softened, it is scraped off, the belt is dried and redressed as previously described.

Polishing rolls are dressed in the same manner as the belts, except that the glue and abrasive are applied directly to the roll. The rolls are built up of series of cotton cloth disks compressed on an arbor by hydraulic pressure and held firmly in place by a key and end flanges. By placing spacers between the cotton disks, rolls of varying degrees of softness can be built up. After dressing with abrasive grit, the rolls must be allowed to set and be cured for periods identical as those for belts.

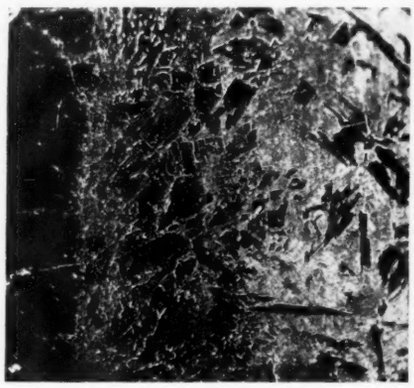

Fig. 10—Zinc-iron alloy disintegration, showing the mechanism of pot destruction

The estimated polishing capacity of the plant is 30,000 square feet a day. The average sheet has a surface of 30 square feet and the average gage is No. 18, thus approximately 1000 sheets or 30 tons of 18-8 steel can be completely ground, polished and shipped in a single working day. The building purchased by the Republic company is only half utilized, thus the present capacity can be increased or even doubled as the market for the new chrome-nickel rust resisting steels expands.

Railroads loaded 25.6 per cent fewer cars of ore in the first half of 1930 than in 1929.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

USES:

Heat-Resisting Metals

Present and future of heat and corrosion-resistant steels, discussed by C. M. Johnson, in Metals & Alloys, June 1930, *p.* 547, 6½ *pp.*, 3 *tables.*

A brief survey of patent literature covering these grades of steel is presented. Physical values and chemical compositions of silicon-chromium valve steel, chromium-silicon-nickel steels, and chromium-nickel-tungsten steels; ductility, weldability, data on stainless steels, comparison of impact values, tensile properties and effect of sulphur are discussed in detail.

—STEEL 7-24-30

Tungsten Carbide

Progress and possibilities of the cemented metal, by Frank W. Curtis, in Factory and Industrial Management, July, p. 44, 3 *pp.*, 6 *illusts.*

The metal is comprised of tungsten, cobalt and carbon, all of which are mixed in correct proportions in the powdered form by a ball mill. The mixed powder is pressed into shape hydraulically and then sintered in a hydrogen atmosphere at a relatively high temperature. Cemented tungsten carbide has been found exceptionally valuable for the cutting of cast iron and nonferrous metals. The cutting of steel has not been so highly successful. In finish turning piston rings tungsten-carbide tools increase production and have long life. In turning semisteel hubs tungsten-carbide tools averaged 20 pieces per grind, 50-hour life and a speed of 103 feet a minute.

—STEEL 7-24-30

Zinc in Die Casting

A brief discussion of the use of zinc in die casting by the gravity and pressure methods, by Robert M. Curtis, in Journal of American Zinc Institute Inc., June, p. 52, 12 *pp.*

The author defines the term, die casting; describes the equipment necessary to make die castings and its operation; discusses the various types of competitive alloys, such as, aluminum, copper, lead and tin base; mentions some of the present-day uses of zinc base die castings; presents a future picture of the zinc industry; and cites analyses and physical properties of the best grades of zinc base alloys.

—STEEL 7-24-30

FABRICATION:

A New Brazing Process

Method employed by Europeans for brazing steel tubing and pipe, discussed by Rudolf Ottenstein, in Engineering and Finance, June, p. 185.

At the joint, within the tubes to be connected, a chamber is formed by the introduction of two disks, held in place by friction and the brazing material is placed therein in solid form. The joint then is heated either from the outside or from the inside. In the latter case the ignition of a chemical substance develops just the necessary amount of heat for the operation and no more. The brazing material flows through small holes from the inner tube into the joint, filling it completely. The quantity of the working material is adjusted to prevent any excess protruding beyond the outside of the joint.

—STEEL 7-24-30

Vitreous Enameling

Requisites in spraying porcelain enamel, by C. D. Clawson, in American Machinist, July 10, *p.* 49, 2 *pp.*, 2 *illusts.*

Poor spraying of the white coat and poorly drained ground coats are probably the most common causes of a rough and rippled appearance. The factors in the spraying operation, which may produce this defect, include consistency of the enamel, air pressure delivered at the spray gun nozzle and the distance the gun is held from the work while spraying. If too much enamel is applied on the piece hair lines, tearing or blistering may occur in the burning operation. Heavy coats of enamel are the greatest cause of chipping in assembly or in use of the article. An enamel that may be sprayed light and still cover the ground coat satisfactorily is highly recommended. Recording pyrometers are essential for accurate control of the burning operation.

—STEEL 7-24-30

Rail-Fastening System

Foreign method of track construction in experimental service in this country, discussed in Engineering News-Record, June 26, *p.* 1052, 3 *illusts.*

Rails bolted only to tie plates and these plates attached to the ties by screw spikes is the main feature of a type of track construction, which has been developed in Germany and is being tried in this country by the Illinois Central, Missouri Pacific and the New York Central railroads. The purpose of the independent fastening is to make the plate an integral part of the tie and thus avoid any motion, with resultant noise and wear, between the plate and the tie.

—STEEL 7-24-30

Surface Hardening of Metals

Hardening of gears and other articles by heating and quenching, discussed by A. E. Shorter, in The Edgar Allen News, Sheffield, England, July, p. 655, 2½, *pp.*, 6 *illusts.*

Hardening is effected by mechanically passing an oxyacetylene flame suitable in size and degree to the area under treatment over the surface to be hardened, and following this with a cooling jet to quench the heat imparted to the surface. This cooling jet follows immediately behind the heating flame as it traverses the surface of the metal so that quenching takes place immediately the steel is brought to the critical temperature. Many alloy steels are quenched by impinging a jet of nitrogen or air.

—STEEL 7-24-30

PRODUCTION:

Briquetting Borings

Compacting borings hydraulically, cost figures and results obtained in

YOUNGSTOWN Galvannealed SHEETS

PROCESS PATENTED

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Brief Facts

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- *Coating won't flake*
- *Coating won't fuse*
- *Coating won't loosen*
- *Coating won't drop off*
- *Takes paint immediately*
- *Unnecessary to weather*
- *Unnecessary to treat chemically*
- *No gloss to kill*
- *Paper sticks tighter*
- *Saves painting cost*
- *Withstands corrosion*

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LONDON REPRESENTATIVE—The Youngstown Steel Products Co., Dashwood House, Old Broad St., London, E. C. Eng.

YOUNGSTOWN

GALVANIZED SHEETS PROTECT ∴ ∴ SAVE WITH STEEL

melting, discussed by Fred J. Walls, in The Foundry, July 15, p. 68, 2¾ pp., 2 illusts., 2 tables. From a paper presented before the Institute of British Foundrymen, Middlesbrough, England, June 17-20.

Success in compressing is best obtained by using dies made of oil-hardened, nonshrinking steel. The cost of producing briquets for eight months amounted to $1.91 per net ton. The saving in the cost of direct materials used amounted to $2.16 per net ton of iron charged in the cupola. It was found unnecessary even when using 21 per cent briquets in the cupola mixture to charge additional flux or coke. Briquets melt in the cupola similarly to any other cast scrap. Practically no difference is found in the average chemical and physical properties of the metal, and in the good castings and scrap produced.

—STEEL 7-24-30

Direct Reduction of Ores

Reactions, which take place, in the Musso steel process, by C. E. Parsons, in Iron and Steel of Canada, April, p. 73.

The Musso steel process is one of the direct methods of reducing iron ores. A plant to make steel by this process is being erected at Ottawa, Canada. Ore is reduced to sponge iron by coal at low temperatures, and the gas produced from this coal and the carbon monoxide resulting from the union of carbon and oxygen of the ore provides all the heat necessary for the reduction in the retort. It is claimed that the total coal required is 40 per cent of that necessary in the blast furnace and open-hearth methods, and that this coal may be of any ordinary quality. Iron ore and fuel finely ground and properly mixed are introduced into a rotary retort. The gases are rapidly removed from the retort and constitute the fuel to heat it and operate the plant. A process diagram and a heat flow plan accompany the text.

—STEEL 7-24-30

Shrinkage of Metal

A study of the influence of shrinkage undergone by metals during casting, by C. M. Saeger Jr. and E. J. Ash, in Transactions and Bulletin, American Foundrymen's association, June, p. 107, 39 pp., 16 illusts., 3 tables.

A review of methods which have been proposed and used for determining the various types of shrinkage undergone by a cooling metal. Liquid, solidification and solid shrinkage are defined. The paper considers in detail the sand-cast-cone method for determining shrinkage during casting and the more fundamental procedure of constructing a specific-volume temperature curve for each metal or alloy from room temperature to some temperature well above the melting point or melting range.

—STEEL 7-24-30

MISCELLANEOUS

Hacksaw Blades

A bulletin, No. 90, of the bureau of standards, Washington.

Standards for hacksaw blades have been revised by the simplified practice committee. Table I of the original recommendations covering tungsten and carbon blades both hard and flexible, has been retained as adopted. Table II, tungsten and carbon blades, covering power hacksaw blades, all hard, was modified by the elimination of four sizes and the addition of five sizes. Two tables of sizes for high-speed blades have been added to the recommendations.

—STEEL 7-24-30

Handling Steel Sheets

System of loading sheets into box cars, discussed in Electrical Production, a publication of the Electrical League of Cleveland, July, p. 8.

A system, which uses a fork truck and two tractors, has reduced the cost of unloading steel from car and stacking in storage to less than 2 cents a ton with a haul between car and storage averaging 300 feet. Stock shorter than 96 inches and in widths up to 30 inches is placed in cars, bound by wire or steel bands, each package of 8000 pounds resting on short 4 x 4-inch blocks placed longitudinally within the car.

—STEEL 7-24-30

Machine Tool Replacement

A permanent survey of all equipment discussed by J. R. Weaver, in American Machinist, June 26, p. 1013, 2¾ pp., 2 illusts.

The time of replacement for a specific machine varies with the kind of product that is being manufactured on it, the change of design of this product, the requirements for lower costs, the increase of activity, and various other factors. Four years should be about the length of time necessary to justify replacement of a machine, especially since changes in machine tools and in the design of products are so rapid that it is necessary to pay for a machine in a shorter time than it was formerly. The survey discloses that the maintenance of machine tools has been reduced materially because old machines have been removed from the shop and replaced with new units. An old machine may be repaired continually, but unless a record is kept of the cost of these repairs, the justification for a replacement may not be evident.

—STEEL 7-24-30

Materials Handling, Storage

Methods for improving materials handling in the foundry, by W. M. Booth, in Transactions and Bulletin, American Foundrymen's association, June, p. 168, 18 pp.

Necessity of mechanical devices in foundry increases as melt exceeds 30 tons an hour. Materials should flow by gravity from bins well above charging floor into charging buckets. Three methods of transferring iron to molds are given: 1. Small ladles to act as shuttles between mixing ladle and mold; 2. ladles of several hundred pounds to serve smaller ladles; 3. pouring from cupola ladle direct to molds. Comparisons of materials handling costs are given.

—STEEL 7-24-30

Rockwell-Brinell Comparison

Relationships between Rockwell and brinell hardness numbers, by S. N. Petrenko, Journal of Research of the bureau of standards, July, p. 19, 32 pp., 2 illusts., 11 charts, 11 tables.

Comparative Rockwell and brinell tests were made on a great variety of ferrous and nonferrous metals. Relationships between the Rockwell and brinell numbers, based on certain simplifying assumptions, are:

$$\text{Brinell number} = \frac{\text{Constant}}{130 - \text{Rockwell ball number}}$$

and

$$\text{Brinell number} = \frac{\text{Constant}}{(100 - \text{Rockwell cone number})^2}$$

These equations were used as guides in finding empirical formulas which fitted most closely the values determined experimentally. Of all the experimental values obtained in the investigation few differed by more than 10 per cent from values obtained from these empirical equations. Empirical equations also were found giving the tensile strengths of steels in terms of their Rockwell numbers. Experimental values checked these equations within an error of plus or minus 15 per cent.

—STEEL 7-24-30

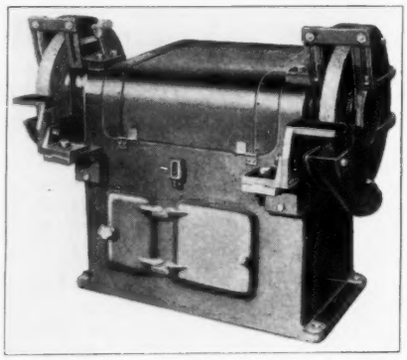
Machine Tools and Shop Equipment

"Without machine tools modern machinery could not be built."

—Joseph W. Roe

Die Chaser Standards Data Are Available in Printed Form

THE department of commerce now has ready for distribution a booklet entitled "Die Head Chasers," which covers in final approved form simplified practice recommendations R5 on chasers for self-opening and adjustable die heads. This project was initiated at a joint conference of manufacturers and users of threading tools, held Dec. 4, 1925, at which meeting the approval of the American Society of Mechanical Engineers and of the National Screw Thread commission was expressed. The standing committee subsequently met on Dec. 20, 1927, and May 20, 1929, and their recommendations finally became effective on July 1, 1929.



Heavy work may be performed on this grinder, which is built to resist overspeeding

The booklet lists eight trade associations, 133 manufacturers, and six government departments which have definitely accepted the recommendations, also 32 other associations, trade journals, etc., which have signified acceptance "in principle."

Following this roster come lists of stockable sizes of chasers under the new plan. The marked reduction in the number of these speaks for itself as to the economy and added efficiency resulting both to manufacturers and to users. In the chapter covering the history of the project this result is still further emphasized, and the procedure toward the accomplishment of this and similar projects is explained.

For the benefit of those who may desire to lend support to the project, an acceptance form to be filled out and sent to the bureau of standards is printed in the back of the booklet. It is specificially pointed out that in matters of simplified practice the department of commerce has no regulatory powers. The success of such projects is based entirely upon the ability of industries to co-operate with each other, the department simply acting as a neutral agency to insure adequate consideration and widespread adoption, to lend prestige, and to be a source of advice and assistance.

◆

Overspeeding Is Prevented by New Grinder Design

Kling Bros. Engineering Works, Chicago, has placed on the market a new line of high-speed heavy-duty grinders in three sizes; for 18 x 2-inch wheels; 24 x 3-inch wheels; and 30 x 4-inch wheels, respectively. All are of the same general design, and are suitable for rough grinding and snagging of castings, forgings, etc.

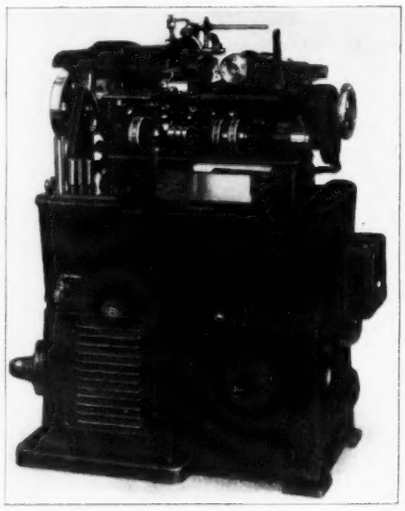
In these grinders the motor is mounted at the rear, to permit easier accessibility, to reduce vibration, and to make a more compact unit. The drive is by V-belts and the wheel shaft is fitted with a bolted coupling, permitting belts to be changed without tearing down the machine.

A safety device is incorporated in these machines to prevent overspeeding of wheels. When the spark guards are lowered as a result of wheel wear, a simple cam and lever mechanism automatically lowers control arms which permit the motor base to slide forward. This allows the mounting of the proper size of high-speed sheave, through the removal of one nut. Before new wheels can be mounted, the spark guards must be released by moving the motor back to its slow speed position, thus insuring that the new wheels are given the correct peripheral speed.

◆

Redesigned Screw Machine Has Wide Speed Range

Brown & Sharpe Mfg. Co., Providence, R. I., announces an increase in the range of spindle speeds on its No. 00G high-speed, motor-driven, automatic screw machine. No changes other than those required to give the increased range of spindle speeds have been made, and operation remains the same as in the older design.



Increased range of spindle speeds on screw machine increases flexibility

Thirty different spindle speeds, ranging from 243 to 5000 revolutions per minute now are available. This broad range makes the machine just as effective on steel as it is on brass, aluminum and other free cutting metals. The speed changes are accomplished by ten change gears and three spindle drive pulleys in ratios of 1 to 3 and 1 to 5. It is now possible to secure a high speed for forming, etc., and on the same piece get the necessarily low speed which

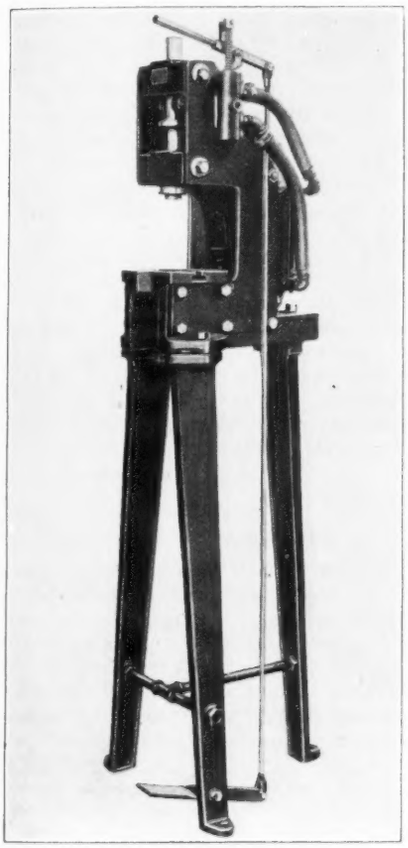
is the most desirable for threading.

This new automatic is adapted to use such standard Brown & Sharpe attachments as the automatic rod magazine and the vertical slide. It is possible, therefore, to perform second operations without dropping the part or requiring a second machine.

◆

Air-Operated Arbor Press Has Rigid Construction

Tomkins-Johnson Co., Jackson, Mich., is announcing a new air-operated arbor press, shown in the accompanying illustration, which embodies unusually rigid construction. In the end of the ram, a hole is provided with set screws so that punches or assembling tools can be bolted directly to the ram. Tools also can be bolted to the table by use of a T-slot. The adjustment of the ram is made by a U-washer of suitable thickness. All the pull is transmitted from the base casting so that there is no fulcrum in side plates. On all the presses, the size of the tubular-type air cylinder may be changed so as to increase or decrease the pressure. The press is available in capacities of 1000, 4000, 6000 and 12,000 pounds. Operation is provided either by hand or by foot.



Design of arbor press reduces stress in the side plates

◆

Magnet Controller Given Automatic Release

Cutler-Hammer Inc., Milwaukee, has designed a new automatic lifting magnet controller which is equipped with an automatic drop arrangement. The automatic drop feature relieves the lifting magnet operator of an extra operation of the master switch each time the magnet is unloaded, giving him more time to operate the engine and brake levers and saving time in loading and unloading. The new controller is fully enclosed to protect the operator against shock and flying particles, and the controller against damage. The mechanism is mounted on an asbestos lumber panel which is moisture proof and withstands heavy shocks. Stationary mounting studs in the case facilitate removal and replacement of the panel. Opening the cover of the split type enclosing case allows easy access and removal of all parts, including the resistor. The complete controller is small in size, yet provides ample space for pulling and connecting wires.

◆

Special Governor Controls Wire Brush and Grinder

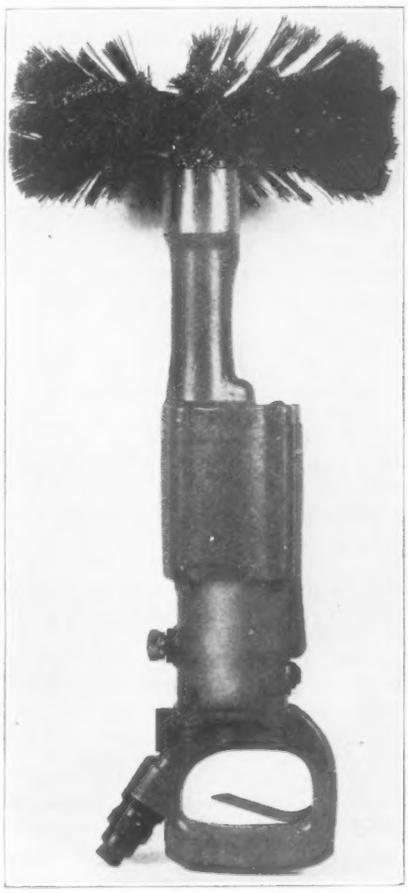
Buckeye Portable Tool Co., Dayton, O., has introduced a new wire brush and grinder which is shown in the accompanying illustration. The tool is governor controlled, with the special feature of air not passing through the governor. It is a heavy-duty tool especially designed for heavy-duty grinding, wire brushing, snagging and buffing. One of its chief uses is for brushing scale and rust on steel cars and similar surfaces. It can be furnished in speeds of 2000, 3100 and 4000 revolutions per minnute. Net weight is 13 pounds.

◆

Speed Reduction Units Are of Nonplanetary Design

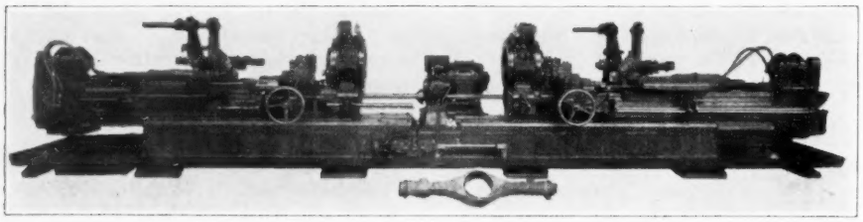
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has designed standard single and double-reduction units for use in general industrial and mining operations. They are of the nonplanetary design with shafts arranged in horizontal plane, and have either right or left-hand assembly. Both types are made in 12 sizes providing a total of 28 standard reduction ratios ranging from 2.82:1 to 70.5:1 and having capacities of from 1 to 635 horsepower.

These speed reducers are rated on the basis of torque to be transmitted in continuous service, with allowance for 100 per cent overloads occuring at starting and momentarily during operation. Single helical gearing has been adopted as standard. Gears are hobbed from forged blanks of 0.40 to 0.50 per cent carbon steel for all except a few of the largest units, the gears for which are hobbed from annealed cast steel.



No air passes through the governor on this easily controlled wire brush grinder

High-speed pinions and shafts are forged from 0.40 to 0.50 per cent carbon steel which is heat-treated. After being treated, pinion teeth are recut to assure accuracy. A long and short addendum tooth form with full depth teeth is used to give maximum strength and tooth overlap, the latter being desirable because at least two teeth



Special machine simultaneously turns, bores, reams and faces the two ends of truck axle housings

are always in contact and carrying the load. This tooth form gives added assurance of low frictional losses, quiet operation and long life in the gearing.

◆

Special Machine Prepares Truck Axle Housings

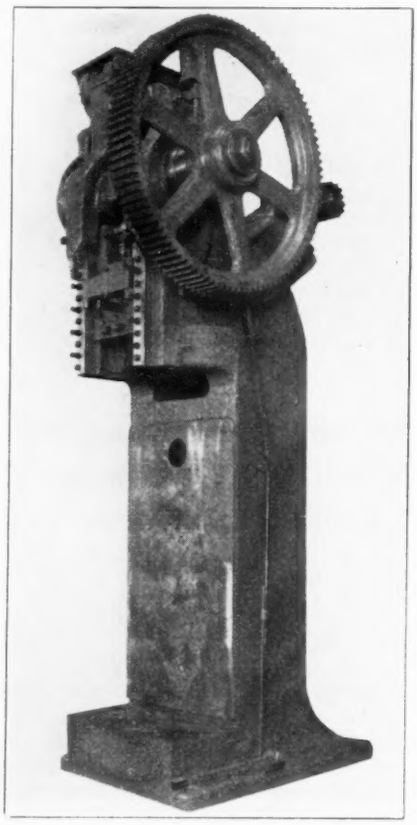
Foster Machine Co., Elkhart, Ind., has designed a special machine for turning, boring, reaming and facing the two ends of truck axle housings simultaneously. Each end of the housing is tapped, but since the thread in each end is right handed, it is necessary to reverse the rotation of the housing for producing the right hand thread in the left hand end, and therefore each thread must be tapped separately.

The machine, shown in the accompanying illustration, consists of a main bed planed to receive two sub beds which are free to slide longitudinally. Gibs for adjustment are provided for each bed. Each sub bed carries a driving head and a hexagon turret complete with automatic operating mechanism. In fact each sub bed is a hydraulic ram for moving the sub beds longitudinally apart or together. These movements are controlled from the lower hand lever shown on the front side of the machine. A special oil pump is provided for effecting the ram action.

The two heads are driven from a single motor mounted on the rear of the machine which transmits the power through a gear train and splined shafts; the latter supplying two speeds. forward and reverse. The entire gearing is enclosed and runs in oil. Each head is provided with a clamping arrangement for chucking an end of the axle housing. Midway between the two heads a swinging fixture is provided for centering the axle housing endwise. This operates similar to a scroll chuck and is provided with two jaws to grip internally on the inside of the opening in the longitudinal center of the axle.

Unusual Features Embodied in Large Special Press

The Toledo Machine & Tool Co., Toledo, O., has just completed a special horning and wiring type



Horning and wiring type press has unusually large die space

press of unusual size and unusual features. This machine, which has a one-piece cast frame, weighs 25,000 pounds, and stands over 14 feet high.

A notable feature of the press, as indicated by the accompanying illustration, is the extreme length of its die space—the distance from the top of the bed to the lower end of the gibs being over 6 feet. The stroke is 8 inches, and control is by a positive clutch of the jaw type. It is driven by a 5-horsepower motor mounted at the top of the frame and geared to the back shaft.

The range of development of these presses from the original small ones for horning and wiring tinware, is brought out by the fact that the Toledo company now builds them in 15 standard sizes, weighing from 1300 to 40,000 pounds.

◆

Heavy-Duty Grinder Suited to Continuous Operation

Hammond Machinery Builders, Kalamazoo, Mich., have designed a compact heavy-duty grinder intended for continuous production service for heavy-tool grinding. The new machine is made in 5 and 7½-horsepower capacities. The outstanding feature of this machine is the totally enclosed 40 degrees Cent. type motor, fitted with a motor air cleaner which supplies clean, cool air to the motor winding, eliminating grit and dirt.

These machines are equipped with pushbutton control and an automatic motor starter, having protection devices for thermal overload, low voltage, and phase failure. The automatic starter is mounted on the inside of the pedestal door for convenience of inspecting and resetting. The spindle is made of chrome-nickel steel, accurately ground and balanced.

Bearings Are Sealed

Oversize ball bearings are protected from dirt and dust by labyrinth seals. They have convenient oilers with oil level gage and flushing plugs, making it possible to cleanse the bearings without dismantling the machine. The wheel guards are made of boiler plate steel and have hinged doors for quick removal of grinding wheels spark shields and shatterless glass eye shields also are provided. They are adjustable to compensate for the wear of the grinding wheels. Adjustable and demountable tool rests are standard equipment.

Construction Progress Shown

A photographic record of the construction of the Ambassador bridge from Detroit to Windsor, Ont., and a brief review of its features and progress are given in a new 48-page booklet published by the McClintic-Marshall Co., Pittsburgh, designer and constructor of the bridge. The 39 photographs show progressive steps in the construction from both the United States and Canadian shores.

Hope for Improvement Is Higher

Steel Industry Looks for Moderate Upturn in Fall but Is Hesitant on Long Pull—Auto Steel Needs To Be Higher—Building Is More Active

STEEL producers increasingly are looking beyond their present light order books and mediocre price situation to a moderate upturn this fall. This hope is predicated chiefly upon a slowly rising curve in automobile production, a continuation of brisk demand for structural material, and a mild, orderly betterment in general business.

Heavier steel releases are due this week from the automotive industry, for fabrication early in August when the shutdown period is ended. Structural steel bookings this week, 37,000 tons, again exceeded the weekly average for 1930, and the large volume of inquiry appears the more promising because current low prices are maturing many projects.

So restricted have been the commitments of many small consumers and so deficient are the stocks of secondary interests that an encouraging degree of replenishment is imperative, if improvement in the fall is to be discounted. Even the railroads appear brighter this week, with the Pennsylvania and Reading soon to buy rails, the Chesapeake & Ohio inquiring for 58,600 tons, and some scattered equipment buying indicated.

It still is true that, while anticipating improvement and believing July a low point, steel producers do not foresee a really brisk market. Comparisons with 1929 will become the more favorable, as a year ago the market was in retreat, and for this reason a more cheerful tone will be evident. Some concern is expressed over prices, as in some lines weakness is evident, and the appearance of sizable business might develop sharp competition.

With the decline which has been practically continuous since February losing its momentum, steelmaking operations this week make a slight contribution to a better situation. At Chicago, Pittsburgh, Cleveland, Youngstown and Buffalo 60 per cent rates obtain, while Birmingham leads at 70 per cent. In many departments, heat has been a retarding factor.

Structural shapes vie with tank plates for the leadership in activity in heavy steel, bars being handicapped by restricted automotive and farm implement buying. Over 15,000 tons of tank work is pending at Chicago, and shipments to line pipemakers enable plate mills there to operate at 80 per cent. Structural awards, totaling 37,000 tons this week, are the sum of many medium-size jobs and compare with 32,233 tons a year ago. Awards thus far in 1930 total 1,045,000 tons; a year ago 1,251,646 tons.

With Ford the only automobile sheet user of consequence in the market, sheet bookings and production at Pittsburgh have receded. Demand for roofing sheets in the Southwest gives Chicago mills the best business since spring. Cold-finished bar releases from automotive users are better. Wire and strip still drag. The National Tube Co. and A. O. Smith Corp. have divided the pipe for the 1000-mile line of the Continental Construction Co. from Texas to Chicago. The National Tube Co. also has 75,000 tons of pipe for the new Great Lakes Pipe Line Co. gasoline line.

Pig iron inquiry is somewhat broader at Chicago, but in other districts is light, and the tendency in merchant iron production is downward. In the Mahoning valley, for example, only two of the seven strictly merchant stacks are active. General Electric Co. had bought 2000 tons for various plants. Beehive furnace coke is more generally quoted at $2.60, a rise of 10 cents, more because of restricted production than brisker demand.

So drastic has been the curtailment in shipping schedules of lake iron ore that estimates for the 1930 movement have been cut to 50,000,000 tons,, or 15 per cent below 1929, but there is strength in this position in that any improvement in finished steel seems certain to be reflected in ore.

A further decline of 4 cents in the market composite of STEEL lowers this index to $33.14, compared with an average of $33.53 for June.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe.

This week (July 23, 1930)	**$33.14**
Last week (July 16, 1930)	**33.18**
One month ago (June, 1930)	**33.53**
Three months ago (April, 1930)	**34.44**
One year ago (July, 1929)	**36.71**
Ten years ago (July, 1920)	**68.29**

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	July 23, 1930	June, 1930	April, 1930	July, 1929
PIG IRON				
Bessemer, del. Pittsburgh	$20.26	20.76	20.76	20.76
Basic, valley	18.00	18.50	18.50	18.50
Basic, eastern del. eastern Pa.	18.25	18.75	18.76	19.85
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.76	19.76
No. 2 foundry, Chicago	18.00	18.40	19.40	20.00
*Southern No. 2, Birmingham	14.00	14.00	14.00	14.40
**No. 2X, Virginia Furnace	18.25	18.25	18.25	20.00
**No. 2X, Eastern del. Philad.	20.26	20.26	20.76	22.26
Malleable, valley	18.50	19.00	19.00	19.00
Malleable, Chicago	18.00	18.40	19.40	20.00
Lake Superior, charcoal, del. Chi.	27.04	24.04	27.04	27.04
Gray forge, del. Pittsburgh	18.63	19.13	19.13	19.13
Ferromanganese, del. Pittsburgh	103.79	103.79	103.79	109.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $12 to $13, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.50	2.50	2.60	2.75
Connellsville foundry, ovens	3.50	3.50	3.50	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	31.00	31.25	33.00	35.00
Sheet bars, open-hearth, Pitts.	31.00	31.25	33.00	35.00
Billets, open-hearth, Pittsburgh	31.00	31.25	33.00	35.00
Wire rods, Pittsburgh	36.00	36.00	38.00	42.00

	July 23, 1930	June, 1930	April, 1930	July, 1929
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.65	1.75	1.80	1.95
Steel bars, Chicago	1.80	1.85	1.90	2.05
Steel bars, Philadelphia	1.94	2.04	2.12	2.27
Iron bars, Chicago	1.90	1.90	1.95	2.05
Shapes, Pittsburgh	1.65	1.70	1.80	1.95
Shapes, Philadelphia	1.66½	1.77	1.81	2.06
Shapes, Chicago	1.80	1.80	1.90	2.05
Tank plates, Pittsburgh	1.65	1.70	1.80	1.95
Tank plates, Philadelphia	1.85½	1.91	1.95	2.15
Tank plates, Chicago	1.80	1.80	1.90	2.05
Sheets, blue anl., No. 13, Pitts.	2.15	2.15	2.25	2.20
Sheets, black, No. 24, Pitts.	2.55	2.55	2.65	2.85
Sheets, gal., No. 24, Pittsburgh	3.15	3.20	3.30	3.60
Sheets, black, No. 24, Chicago	2.70	2.70	2.80	3.10
Sheets, blue anl., No. 13, Chicago	2.30	2.30	2.40	2.50
Sheets, galvanized, No. 24, Chi.	3.35	3.35	3.45	3.85
Plain wire, Pittsburgh	2.30	2.30	2.40	2.50
Wire nails, Pittsburgh	2.10	2.15	2.25	2.65
Tin plate, per base box, Pitts.	5.25	5.25	5.25	5.35
SCRAP				
Heavy melting steel, Pittsburgh	14.75	15.10	16.05	18.45
Heavy melting steel, eastern Pa.	12.50	13.25	13.95	16.50
Heavy melting steel, Chicago	12.00	12.05	13.00	14.75
No. 1 wrought, eastern Pa.	15.25	15.25	15.75	16.25
No. 1 wrought, Chicago	11.25	11.50	13.30	14.85
Rails for rolling, Chicago	14.50	14.55	15.00	17.50

Sheets

Business Slower at Pittsburgh —More Inquiries at Youngstown—Middle West Active

SHEET PRICES, PAGE 73

Pittsburgh—Sheet tonnage shows a further slight moderation. With the exception of forward tonnage placed by Ford, automotive companies are slow to specify for August needs and requirements of the industry are at the lowest level of the year. Specifications from other consumers are limited to small lots, the aggregate of which is providing sheet mill operations of 45 to 50 per cent, a slight decrease from a week ago. Producers continue to quote 2.55c on black sheets, with some tonnage going at $2 a ton less. Galvanized sheets are 3.10c to 3.20c, with the lower price offered to jobbers and in a few instances reported to consumers. Blue annealed sheets continue 2.15c for No. 13 and 2.00c for No. 10.

New York—No further declines are noted in sheet prices. Black sheets are 2.45c to 2.50c, Pittsburgh. Galvanized sheets are 3.10c to jobbers and large manufacturing consumers, although 3.15c holds on medium lots for the manufacturing trade. Blue annealed sheets and plates are unchanged at 2.15c and 2.00c, Pittsburgh, respectively. Buying continues close to requirements.

Philadelphia — Sheet bookings have improved. Black sheets have eased off and one-pass, cold rolled now are 2.45c, base, Pittsburgh. Galvanized continue 3.10c to 3.15c, and blue annealed 2.00c and 2.15c. Strip sheet has shown a firmer tendency and ranges from 1.80c to 2.00c, Pittsburgh, for heavy gages and 1.95c to 2.15c for light gages, plus blue annealed extras on widths over 30 inches, although on widths from 24 to 30 inches prices are somewhat easier.

Youngstown, O.—Several sheetmakers believe an increase in orders is presaged for the near future, due to preliminary inquiries from a variety of sources outside of the automotive industry. Demand for furniture sheets is ahead of normal. Autobody sheets are 3.60c; furniture sheets, 3.70c; No. 24 black, 2.45c to 2.55c; No. 24 galvanized, 3.15c; and blue annealed, 2.00c and 2.15c for No. 10 and No. 13 gages, respectively.

Cleveland—Makers of agricultural implements, barrels, furniture and juvenile vehicles are taking more sheets than in several weeks. Some large consumers of automotive sheets have definite dates on which shipments can be resumed. W. F. Robertson Steel & Iron Co., Springfield, O., has been awarded a contract for 2,000,000 pairs of 1931 automobile license tags for Illinois. While some black sheets recently were sold to an automobile interest at 2.40c, Pittsburgh, they were pickled and deep-drawing stock, carrying attractive extras. While some of the barrel makers not particular about quality have paid 2.45c, others have recently bought black sheets at 2.55c from their regular sources. Autobody sheets are 3.60c, and furniture 3.10c, Pittsburgh, galvanized 3.15c.

Chicago—Sheet tonnage moving is the heaviest since spring. A moderate upturn is due in part to more active jobber business, the start of galvanized roofing orders from the southern markets, and heavier orders for black sheets from the manufacturing trade. Opinions are that the improvement will continue during August. Sheet mill operations in the Chicago district are 60 to 70 per cent. Hot weather last week tended to interfere more with schedules than lack of tonnage. Chicago district mill prices remain on the basis of 2.65c for No. 24 black; 3.30c for No. 24 balvanized; and 2.10c for No. 10 blue annealed.

Cincinnati—An improved sentiment is noted in the sheet market although production schedules continue about 40 per cent.

St. Louis—Sheet demand is slow, with shipments considerably below the average seasonal volume of the past ten years.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

SHEET MILL BLACK, NO. 24

Pittsburgh base	2.45c to 2.55c
Detroit, delivered	2.76½c to 2.81½c
Philadelphia, delivered	2.74c
Gary, Indiana Harbor	2.65c
Chicago, delivered	2.70c
Birmingham, base	2.70c
St. Louis, del.	2.97c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.80c to 2.90c
Gary, base	2.90c to 3.00c

GALVANIZED NO. 24

Pittsburgh, base	3.15c
Philadelphia, delivered	3.39c to 3.44c
Gary, Indiana Harbor	3.30c
Chicago, delivered	3.35c
Birmingham, base	3.35c
St. Louis, del.	3.62c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base*	1.95c to 2.15c
Chicago, district mills	2.25c
Chicago, delivered	2.30c
St. Louis, delivered	2.57c
Philadelphia, delivered	2.44c
Birmingham	2.30c to 2.35c

*Minimum price is for cont. mill.

BLUE ANNEALED PLATES, NO. 9-10

Pittsburgh, base*	1.70c to 2.00c
Chicago, district mills	2.10c
Chicago, delivered	2.15c
Philadelphia, delivered	2.29c
St. Louis, delivered	2.42c
Birmingham	2.15c to 2.20c

*Minimum price is for cont. mill.

AUTOMOBILE NO. 20

Pittsburgh, base	3.60c
Detroit, delivered	3.86½c

FURNITURE NO. 24

Pittsburgh	3.70c

Tin and Terne Plate

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	3.65c to 3.75c

*Subject to quantity differentials.

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. Pittsburgh, Cleveland base

(Per 100 pound keg)

Standard wire nails	$2.10-2.15 and 2.25
Cement coated nails	2.15 and 2.25
Galvanized nails	4.15 and 4.25

(Per pound)

Polished staples	2.60c and 2.70c
Galvanized staples	2.85c and 2.95c
Barbed wire, gal.	2.80c and 2.90c
Annealed fence wire	2.30c and 2.40c
Galvanized wire	2.75c and 2.85c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.30c
Spring wire	3.30c
Wire, delivered Detroit	2.53½c
Nails, delivered Detroit	$2.38½

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Cut Nails

Carloads, f.o.b. mills	2.45c
Less-c.l., f.o.b. mills	2.55c

Chain

PROOF BB AND BBB, Pittsburgh

3/16 to ½-inch	33 1/3 and 5 off
9/16 to 1½-inch	33 1/3 off

Steel Plates

Pittsburgh, base	1.65c to 1.70c
Philadelphia, del.	1.80½c to 1.85½c
New York, del.	1.88c to 1.93c
Boston, del.	2.05c
Chicago, base	1.75c to 1.80c
Cleveland, delivered	1.78½c to 1.88½c
Lackawanna, N. Y., base	1.80c
Birmingham, base	1.90c
Coatesville, Pa., base	1.75c
Pacific Coast, c.i.f.	2.25c
St. Louis, del.	2.12c
Detroit, del.	1.91½c to 1.96½c

Structural Shapes

Pittsburgh, base	1.65c to 1.70c
Philadelphia, del.	1.66½c to 1.76½c
New York, del.	1.75½c to 1.85½c
Boston, del.	1.88½c to 1.98½c
Chicago, base	1.75c to 1.80c
Cleveland, delivered	1.83½c to 1.88½c
Lackawanna, N. Y.	1.80c
Birmingham, base	1.90c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	1.91½c to 1.96½c

Bars

SOFT STEEL

Pittsburgh, base	1.65c to 1.75c
Chicago, base	1.75c to 1.85c
Birmingham, base	1.90c
Lackawanna, N. Y., base	1.85c
Pacific Coast, c.i.f.	2.35c
Cleve. base, local mills	1.70c to 1.75c
Cleve., del. outside mills	1.75c
Philadelphia, del.	1.99c to 2.04c
New York, delivered	1.98c to 2.08c
Boston, delivered	2.05c to 2.15c
Detroit, del.	1.95c to 1.98½c
Pittsburgh, cold finish.	1.80c to 1.90c
Pittsburgh, forg. qual.	1.90c to 2.00c

RAIL, STEEL

Chicago Heights	1.75c
Eastern mills	1.65c to 1.70c

IRON

Chicago, base	1.90c
New York, delivered	1.98c to 2.03c
Philadelphia, delivered	1.99c to 2.04c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.90c to 2.00c
Stock lengths, mill	1.65c to 1.75c
Chi. billet, over 500 tons	1.85c
30 to 500 tons	2.00c
Under 30 tons	2.45c
Chicago, rail steel	1.65c to 1.70c
Road and bridge work	1.65c to 1.70c
Philadelphia, cut lengths	2.14c

Cold-Finished Steel

Bars, Pitts., Chi., Buff.	2.10c
Cleveland	2.00c to 2.10c
Do. delivered, Detroit	2.20c
Shafting (turned, polished) Pitts., Buffalo	2.10c
Shafting (turned, ground) mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets 35c; plates 31c; bars 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	22c	23.5c	26c	31c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	5100 .60-.90	
2100	0.55	Cr.	0.35
2300	1.50	5100 .80-1.10	
2500	2.25	Cr.	0.45
3100	0.55	5100 Chr.	
3200	1.35	spring.	0.20
3300	3.80	6100 Bars	1.20
3400	3.20	6100 Spring	
4100 .15-.25		Steel	0.95
Mo.	0.50	Chr., Ni., Van.	1.50
4100 .25-.40		Carbon Van.	0.95
Mo.	0.70	9250 (flats)	0.25
4600 .20-.30 Mo.		9250 (rds.,	
1.25-1.75 Ni.	1.05	sqrs.)	0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.75c to 1.80c
Delivered, Detroit	2.01½c
Hot strip 6 1/16 to 24-in., Pitts.	1.65c to 1.70c
Delivered, Detroit	1.91½c
Hot strip, bands 6 in. and under, Chicago	1.90c
Do. 6 1/16 to 24 in.	1.80c
Cooperage stocks, Pitts.	2.00c to 2.10c
Do. Chicago	2.10c to 2.20c
Cold rolled strip., Pitts., Cleve., 3 tons, over	2.45c
Delivered, Detroit	2.65c
Worcester, 3 tons, over	2.60c to 2.70c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 28.00
Light rails, 25-45, mills	$34.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.80c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.80c
Spikes boat, barge, Pitts.	3.00c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plates, mills	$41.50

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930 lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 off

MACHINE BOLTS

All sizes cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 off

Tire bolts ..... 60, 10 and 10 off

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 off

***HEXAGON CAP SCREWS**

Milled ..... 80-10-5 off

Upset 1 in. diam. and smaller 85-10 off

***SQUARE HEAD SET SCREWS**

Milled ..... 85-5 off

Upset 1 in. and smaller ..... 80-10-5 off

*Discounts dated Jan. 23, 1930.

Sheet Piling

Base, Pittsburgh	2.00c to 2.10c

Bars

Small Orders Rule Market—Prices Fairly Steady but Untested—No Forward Buying

BAR PRICES, PAGE 73

New York—Most business in steel bars is moving at 1.70c to 1.75c, Pittsburgh, the latter applying to small lots. On larger orders 1.65c is being done, but sellers report that figure absolute minimum. Buying is light, but a scattered volume is noted on which the higher figures prevail. Forging bars for the automotive trade are slightly more active, but below normal. The general trend of the market is unchanged, although toward improvement if anything. Common iron bars are unchanged at 1.65c to 1.70c, Pittsburgh.

Philadelphia—Steel bar demand continues at a lower rate than the June average. The price continues firm at 1.65c to 1.70c, Pittsburgh, on small lots.

Pittsburgh—Inquiry and specifications for steel bars remain at their recent slow rate. Current orders are in small lots and forward buying is slow to develop. Producers continue to name 1.70c and 1.75c, Pittsburgh, to average buyers, with slightly more tonnage on a 1.65c basis.

Cleveland—In the continued absence of large orders for merchant steel bars for automotive purposes, producers depend upon accumulation of small orders. Consumers are operating on as little stock as possible. An undertone of betterment is seen and the situation is expected to improve. The usual quotation is 1.70c, Cleveland, for outside delivery, and 1.75c, Cleveland, for local. Some outside mills still name 1.75c, Pittsburgh.

Chicago—Bar mills are operating at about 60 per cent, largely on spot miscellaneous orders, well diversified. Heat has affected operating rates more than lack of tonnage. Schedules of western automotive parts makers already are heavier. Bar mill specifications have made a better showing in the last ten days than the average since spring, but without evidence of a sustained movement. Buyers exert less pressure against prices. Soft steel bar sales range from 1.75c to 1.85c, Chicago. Interest in third quarter awaits the passing of vacations and shutdowns.

Ever Hot Heater Co., Detroit, has retired its preferred stock of $100,000, leaving its capital $300,000 in common shares.

Sees Ford Sales Gaining

Foreign sales of products of the Ford Motor Co., Detroit, abroad in 1930 will equal those of 1929, declared C. E. Sorenson, general manager of the Ford company, on returning from Europe, July 14. An extensive campaign to sell Ford planes abroad will be undertaken next year.

Koppers Co. Buys Railroad

Cincinnati—The Koppers Co. has bought for about $250,000 the Cincinnati-Georgetown railroad, an electrically operated line with main tracks 42 miles to Georgetown, O. The intention, it is reported, is to establish a river terminal near here. The purchase may be part of a plan to transport coal by river and rail to coke ovens of the Hamilton Coke & Iron Co.

Plates

Inquiry for Tank Material Is Increased to 15,000 Tons at Chicago—East Also Busier

PLATE PRICES, PAGE 73

New York—The Magor Car Corp., New York, wants 700 tons of steel, including 500 tons of plates for 25 20-ton dump cars for the Delaware, Lackawanna & Western railroad. Heat Transfer Products Co., subsidiary of American Locomotive Co., Schenectady, N. Y., has placed 1000 tons of plates with the Bethlehem Steel Co. for a pipe line in New York. Plate demand shows a substantial improvement in this territory. The market is 1.70c to 1.75c, base, Coatesville, equivalent to 1.88c to 1.93c, delivered, New York. About 1000 tons of plates will be required for a pier for the Erie railroad in New York harbor. An oil company is inquiring for plates for stills.

Pittsburgh—Large individual tonnages are lacking in the plate market and the aggregate of smaller miscellaneous lots is lighter than a month ago. Producers of lapweld pipe continue heavy consumers. Activity in the barge market is restricted. Plates continue 1.65c to 1.70c, Pittsburgh.

Cleveland—Inquiries for plates usually call for 75 to 100 tons. One for 300 to 350 tons is pending. The Youngstown Boiler & Tank Co. is in the market for about 2000 tons. Outside mills continue to quote 1.65c, Pittsburgh, but a local seller has quoted 1.65c, Cleveland.

Chicago—Plate sales and inquiry for oil tanks are imposing. About 1000 tons for refinery work in the Southwest have been added to inquiry, making a total of 15,000 tons. Rumors are heard of important refinery storage projects in Oklahoma. Plate mill operations at slightly above 80 per cent, supported largely by pipe line shipments and storage tank work, are leading among the finishing mills. Prices remain in a range of 1.75c to 1.80c, mill.

Philadelphia—Eastern plate mills now are operating at 50 to 65 per cent. Some makers report better bookings, while others report quiet conditions. The market continues 1.70c to 1.75c, base, Coatesville, with differentials to structural fabricators and certain other classes of buyers.

St. Louis—A better demand has developed for tank plates, due to orders from Arkansas and Oklahoma oil interests.

Birmingham, Ala.—Plate orders show a slight increase. The new universal mill of the Gulf States Steel Co. at Gadsden, Ala., is producing 32-inch material. Tank makers are active.

Contracts Placed

175 tons, city water system, Walla Walla, Wash., to King Bros., Portland, Oreg.

Contracts Pending

900 tons, 2,000,000-gallon elevated tank for Detroit; bids received.

Barge Line Opens Sept. 1

The new Mississippi Valley Barge line, St. Louis, will begin operations

between New Orleans and Cincinnati about Sept. 1. Two 2000-horsepower towboats have been launched and 50 barges are under construction. Total investment in the line is approximately $3,500,000, and it is proposed to operate a 6-day express service.

Southwest Shows Decline in General Business

Business conditions in the Southwest are statistically somewhat under those of the same period in 1929, but many constructive elements are present. Los Angeles has voted $38,800,000 in bonds for water department improvements, congress is ready with $10,600,000 for Boulder dam work and more than $8,000,000 has been voted for a breakwater and dredging operations for Los Angeles harbor.

Building operations in June were below May and also below June, 1929. Employment is several points lower for June than for May but the situation is far from serious in this respect. Iron and steel shares with motion pictures the largest decrease in employment. Part of this is seasonal but comparison with June, 1929, shows a lower total.

Europe Not Yet Ready for 100-Story Skyscraper

Europe is becoming skyscraper conscious but whether the 100-story building will soon be a possibility there as it has in New York is doubtful, said George E. J. Pistor, treasurer and director of the American Institute of Steel Construction, New York, in a recent address in London under auspices of the British Steelworks association.

The skyscraper, according to Mr. Pistor, is an economic necessity made possible by structural steel, and today is assuming a more aesthetic form because architects are learning to take full advantage of its line and mass.

Steel Joists Simplified

Simplified practice recommendation covering dimensions and allowable loads per linear foot of open web steel joists was approved at a meeting of the industry at Cleveland, under auspices of the department of commerce, July 15. The recommendation, subject to approval of the industry, will be effective Oct. 1.

Railroads

Car Inquiries Light—Buying Is Confined to 45 or Less at Time —58,600-ton Rail Inquiry Out

TRACK MATERIAL PRICES, PAGE 73

New York—Car buying is light. Active inquiry is also limited. Lehigh & New England is inquiring for five locomotives. Delaware, Lackawanna & Western placed 25 all steel drop-end gondolas. Baltimore & Ohio reopened its Mt. Clair and Cumberland shops after a shutdown. Altoona, Pa., shops of the Pennsylvania will be down the week of July 28.

Norfolk & Western is inquiring for 3250 wrought steel wheels. Bids are due Aug. 6.

Pittsburgh — Specifications for track material are slow and with inquiry lacking for fastenings as well as rails and cars the market shows usual summer dullness. Some pressure is exerted for lower prices on track material, but quotations are unchanged.

Chicago—Chesapeake & Ohio railroad is defintely in the market for 58,600 tons of rails. This will be the largest order since early spring buying. It is expected the rails will be rolled this year. Miscellaneous track accessory orders amount to 500 to 1000 tons weekly. Rail mill operations remain at about 50 per cent.

A spurt in small-lot car equipment inquiries and orders has been shown. Union Pacific placed 25 cars. Several roads plan to build their own cars. Car shop operations in this district are below 35 per cent.

Birmingham, Ala.—Rail backlogs are fairly extensive although no new business is in sight for the immediate future. The Bessemer, Ala., plant, Pullman Car & Mfg. Corp., operates steadily. It has work in sight for eight weeks.

Car Orders Placed

Aluminum Co. of America, 45 70-ton cars including 20 special hoppers and 25 hoppers to Canton Car Co., Canton, O.

Delaware, Lackawanna & Western, 25 70-ton all steel, drop-end gondola cars, steel floors, 65 feet long, for transportation of structural steel, to Magor Car Corp., Passaic, N. J.

Huron Portland Cement Co., 12 steel rock cars, to American Car & Foundry Co., Chicago.

National Dump Car Co., 10 50-ton steel rock cars, to American Car & foundry Co., Buffalo.

Union Pacific, 14 chair cars, to Pullman Car & Mfg. Corp., and 10 baggage cars and one baggage-mail car, to Pressed Steel Car Co., Pittsburgh.

Viscose Co., Marcus Hook, Pa., two flat cars, to Pressed Steel Car Co., Pittsburgh.

Car Orders Pending

Arms-Yager Car Co., 15 50-foot stall-less horse cars.

Cerro de Pasco Copper Co., two 10,000-gallon tank cars.

Western Fruit Express, 100 underframes.

Locomotive Orders Pending

Lehigh & New England, three heavy switching locomotives and two freight locomotives of 2-10-0 type.

Rail Orders Pending

Chesapeake & Ohio, 58,600 tons.

Tin Plate Demand Drops; Operations Are Lower

Tin Plate Prices, Page 73

Pittsburgh — Tin plate activity continues to decline, with recent warm weather lending some uncertainty to the outlook for vegetable packs. Figures on the Hawaiian pineapple pack show an increase of 2,000,000 cases over 1929. Tin mill operations are off slightly at 65 to 70 per cent. The official price remains $5.25 per base box.

Closes Office in India

New York—Col. R. H. Morse, vice chairman, Fairbanks, Morse Co., Chicago, before sailing for Europe July 15, stated he had ordered the company's representatives to close their office in India for the present, owing to unsettled conditions. The Indian staff will go to Japan, China and South Africa.

Text-Book To Be Revised

The second edition of the text-book "The Technique of Vitreous Enameling," soon will be published by the Ferro Enameling Co., Cleveland. Owners of the first edition will be supplied with copies of the new edition upon return of the old. Copies are to be mailed to the offices of the company at 2100 B. F. Keith building, Cleveland.

Structural Shapes

Low Prices Entice Eastern Builders—Lettings Still Numerous, Including 7800-ton School, 6800-ton Apartment and Several Office Buildings —Inquiry Rate Active

STRUCTURAL SHAPE PRICES, PAGE 73

New York—Fabricated structural steel lettings continue heavy. New work up for figures runs strong. Plain material prices are steadier and appear at bottom, but fabricated prices still are weak. Large shipments from fabricating shops have not materially reduced backlogs. Small shops are also taking a steady volume. A school, 7800 tons, an apartment, 6800 tons, and two office building additions, 3730 tons, were placed. New work includes 2200 tons for a bridge in West Virginia.

Boston — Better sentiment in building circles may liberate some held up projects. Last week contracts aggregated less than 550 tons. At present below 400 tons is pending, including L street bridge reconstruction, 200 tons. The largest award was 212 tons for a medical library, Boston.

Philadelphia—Shape bookings are fair, but reflect a reduction of fully 15 per cent compared with a year ago. Eastern shape mills now operate 60 to 65 per cent. Shape market continues 1.60c to 1.65c, eastern mills, for plain standard material, with lower occasionally named on especially desirable lots.

Pittsburgh—Structural activity is quiet in this district. Practically all awards are less than 100 tons. Specifications for plain material show little change from earlier in the month. The market continues 1.65c to 1.70c, Pittsburgh.

Cleveland—Awards this week are confined to tonnages lower than 100 tons at a time. H. F. Juergens, Cleveland, is low bidder on the general contract for Shaker Heights high school, taking 700 to 900 tons. Bids went in last Friday on a 300-ton building at Van Wert, O., for Central Manufacturers' Mutual Insurance Co. Plain material is 1.65c, Pittsburgh. Eyes of the trade are focussed upon the early August award of 11,700 tons for the Central-Lorain bridge here.

Chicago — Spread throughout western territory, structural business is decidedly promising. Local tonnage is less encouraging. About 3000 tons in active inquiry in lots of 200 to 1500 tons, has appeared. A similar tonnage has been placed. Inquiries are more encouraging than for many weeks. Deliveries are prompt except in sizes which must await mill cycles. Plain material prices are $2 above Pittsburgh.

Birmingham, Ala.—Structural contracts are more numerous though many are for small lots. Ingalls Iron Works Co., Virginia Bridge & Iron Co., Southern Steel Co., and others are fabricating steadily.

Contracts Placed

7800 tons, technical high school, De Kalb avenue, Brooklyn, N. Y., to McClintic-Marshall Co., Pittsburgh; Fredburn Construction Co., general contractor.

6800 tons, Majestic apartments, Central Park west, Seventy-first and Seventy-second streets, New York, to Hay Foundry & Iron Works, New York; Chanin Construction Co., general contractor.

3100 tons, office building, department of agriculture, Washington, to American Bridge Co.; Nelson-Pedley Construction Co., Philadelphia, general contractor.

2680 tons, additional tonnage for Empire State building, New York, to McClintic-Marshall Co., Pittsburgh.

2000 tons, 28-story office and store building, Gold, Platt and John streets, New York, to Harris Structural Steel Co., New York.

1500 tons, highway bridges in Illinois, to Vincennes Bridge Co., Vincennes, Ind., and Continental Bridge Co., Chicago.

1200 tons, Title Guarantee building, Los Angeles, to Consolidated Steel Corp., Los Angeles.

1050 tons, addition, Equitable Life Assurance society, 393 Seventh avenue, New York, to Hay Foundry & Iron Works; Thompson & Starrett Co., general contractor.

875 tons, bridge work for Chicago, Burlington & Quincy railroad, to American Bridge Co., Chicago.

Awards Compared

	Tons
Awards this week	**39,322**
Awards last week	**56,757**
Awards two weeks ago	**27,885**
Awards this week in 1929	**32,223**
Av. weekly awards, 1930	**34,926**
Av. weekly awards, 1929	**42,213**
Av. weekly awards, June	**31,479**
Tot. awards to date, 1929	**1,251,646**
Tot. awards to date, 1930	**1,047,792**

840 tons, junior high school, Buffalo, to McClintic-Marshall Co., Pittsburgh.

700 tons, warehouse, Grocers' Wholesale Co., Des Moines, Iowa, to Pittsburgh-Des Moines Steel Co., Des Moines.

640 tons, two bridges, B street, Philadelphia, to McClintic-Marshall Co., Pittsburgh.

630 tons, retaining wall, Safe Harbor, Pa., to Lehigh Structural Steel Co., Allentown, Pa.; Arundel Corp., general contractor.

600 tons, addition, Russel Sage Foundation, East Twenty-second street, New York, to Eidlitz & Ross, New York; C. T. Will Inc., general contractor.

550 tons, Magnin's store, Oakland, Calif., to Judson-Pacific Co., San Francisco.

500 tons, two bridges for Nebraska highway commission, one at Paxton, Nebr., to Omaha Steel Co., Omaha, Nebr., and another at Odessa, Nebr., to Nebraska Allied Contractors Inc., Omaha.

450 tons, bridges, Mt. Vernon Memorial highway, Washington and northern Virginia, to American Bridge Co.; Merritt-Chapman-Scott, general contractor.

406 tons, Lyceum building, Buffalo, to Tobol Iron Works, Buffalo.

400 tons, 4-story garage, 304 East Sixty-fourth street, New York, to Kues Bros. Iron Works, Bronx, N. Y.; John H. French Co., contractor.

350 tons, bridge on Nashville, Chattanooga & St. Louis railroad, to Virginia Bridge & Iron Co., Birmingham, Ala.

350 tons, bridge over Mississippi river, at Wabasha, Minn., to Minneapolis-Moline Power Implement Co., Minneapolis.

330 tons, train shed, Big Four railroad, Cincinnati, to Virginia Bridge & Iron Co., Roanoke, Va.

325 tons, North Halstead street subway for Chicago & North Western railroad, at Chicago, to American Bridge Co., Chicago.

300 tons, mechanical engineering laboratory, Virginia Polytechnical institue, Richmond, Va., to Virginia Bridge & Iron Co., Roanoke, Va.; D. J. Phipps, Roanoke, general contractor. Reinforcing steel to Truscon Steel Co., Richmond.

300 tons, highway bridge, Potsdam, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

300 tons, warehouse, Humble Oil & Refining Co., Baytown, Tex., to Orange Car & Steel Co., Orange, Tex.

285 tons, various structural requirements for Chicago, Burlington & Quincy railroad, to Vierling Steel Works, Chicago.

250 tons, addition, General Cable Corp., Perth Amboy, N. J., to Belmont Iron Works, Philadelphia; H. K. Ferguson Co., general contractor.

250 tons, Y. M. C. A. building, New Rochelle, N. Y., to Lacour Iron Works, Brooklyn, N. Y.; Eyrich & Ward, general contractors.

237 tons, Monroe high school, Monroe, La., to Orange Car & Steel Co., Orange, Tex.

212 tons, medical library, Boston, to Boston Bridge Co., Boston.

210 tons, Alexander county bridges, Cache, Ill., to Eagle Iron Works, St. Joseph, Mo.

200 tons, warehouse, Edgar T. Ward's Sons Co., Chicago, to Gage

Structural Steel Co., Chicago; reported last week to unstated fabricator.

200 tons, highway bridge, Brainerd, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

200 tons, building, Detroit Stock Exchange, Detroit, to R. C. Mahon Co., Detroit; O'Dell & Diehl, Detroit, architects.

180 tons, Pennsylvania road work, Thirty-fourth street, Philadelphia, to McClintic-Marshall Co., Pittsburgh.

156 tons, Erie county bridge, Ellicott Creek, Tonawanda, N. Y., to Lackawanna Steel Construction Corp., Buffalo.

150 tons, packing house at Florence Villa, Fla., to Ingalls Iron Works Co., Birmingham, Ala.

150 tons, boiler work, Erie City Iron Works, Erie, Pa., to Ingalls Iron Works Co., Pittsburgh.

150 tons, natural gas compressor station, D'Armandville, Ala., to Ingalls Iron Works Co., Birmingham, Ala.

150 tons, sand handling and conditioning buildings, 20 x 80 and 50 x 130 feet, respectively, Taylor-Wharton Iron & Steel Co., High Bridge, N. J., to Austin Co., Cleveland.

140 tons, two bridges, Palisades Park, N. J., to Phoenix Bridge Co., Phoenixville, Pa., to McClintic-Marshall Co., Pittsburgh.

140 tons, shop extension, Brooklyn Rapid Transit, Brooklyn, N. Y., to Buckingham Steel Co., Brooklyn.

130 tons, transit shed, berth 181, Los Angeles, to Consolidated Steel Corp., Los Angeles.

130 tons, municipal stadium, Malden, Mass., to New England Structural Co., Boston.

125 tons, Connecticut state highway bridge, Meriden, Conn., to American Bridge Co.

101 tons, Kentucky & Indiana railway grade separation at Louisville, Ky., to Louisville Bridge & Iron Co., Louisville.

100 tons, Oakman branch library, Detroit, to Daigle Iron Works, Detroit; T. J. Keim, Detroit, general contractor; Burrows & Eurich, Detroit, architects.

100 tons, United States Marine hospital, New Orleans, to Ingalls Iron Works Co., Birmingham, Ala.

100 tons, building, Federal Pipe & Supply Co., Chicago, to Wendnagel & Co., Chicago.

100 tons, two grade schools, Chicago, to Butler Street Foundry & Iron Co., Chicago.

100 tons, Edwards Elementary and Lovett schools, Chicago, to Wendnagel & Co., Chicago.

100 tons, branch bank, Fulton Trust Co., Madison avenue and Seventy-seventh street, New York, to Lehigh Structural Steel Co., Allentown, Pa.

100 tons, office building, 697 Madison avenue, New York, to Dreier Iron Works, New York; J. H. Taylor Co., general contractor.

100 tons, alterations, warehouse, 502 West Thirtieth street, New York, to Dreier Iron Works, New York.

Contracts Pending

6000 tons, building at 90 Broad street, New York, for Stone & Webster Inc.

2200 tons, bridge, Virginian railway, Kanawha river, Deep Water, W. Va.

1800 tons, postoffice and court house, Wichita, Kans.

1500 tons, breaker, Philadelphia & Reading Coal & Iron Co., St. Nicholas, Pa.

1000 tons, blast furnace and stove equipment, Inland Steel Co., South Chicago, Ill.

1000 tons, building, Union Trust Co., Cincinnati; general contractor bids closed July 21.

1000 tons, apartment hotel, 150 East Forty-eighth street, New York.

1000 tons, loft building, 361 Seventh avenue, New York.

1000 tons, school No. 98, Douglaston, Queens, N. Y., and addition to school No. 124, Richmond Hill Circle, Queens; bids July 30.

850 tons, interstate bridge, Stillwater, Minn.

800 tons, bridge, Coplay, Pa.; Seeds & Derham, Philadelphia, low bidders.

800 tons, apartment, 144 East Forty-eighth street, New York.

800 tons, art museum, Kansas City, Mo.

700 to 900 tons, Shaker Heights, O., high school, H. F. Juergens, Cleveland, general contractor is low.

700 tons, Osage dam, for Union Electric Light & Power Co., at Bagnell, Mo.

600 tons, building addition, Sage Foundation, East Twenty-second street, New York.

500, bridge, Erie railroad, Jersey City, N. J.

400 tons, state highway near Niles, Mich.; McClintic-Marshall Co., Pittsburgh, low.

400 tons, Illinois highway bridges.

300 tons, building, Central Manufacturers' Mutual Insurance Co., Van Wert, O., bids in July 18.

300 tons, garage, Pottsville, Pa.; bids in.

270 tons, apartment, Vallejo street, San Francisco; bids being received.

250 tons, 7-story building, 116 West Thirteenth street, New York.

250 tons, addition, Ohio Rubber Co., Willoughby, O.; bids close Aug. 23.

224 tons, Faxon hospital, Utica, N. Y.; general contract to H. R. Beebe Inc., Utica.

200 tons, bridge, Sumner street, Boston.

200 tons, L street bridge, Boston.

165 tons, hospital, Waltham, Mass.

100 tons or more, lift span type bridge, Lawe street, Kaukauna, Wis.; council adopted resolution authorizing $100,000 bond issue for city's share; similar appropriation available from state highway commission; L. C. Wolf is city clerk.

Concrete Bars

Awards Fairly Large—3500 Ton Bridge Let in Los Angeles—700-Ton Hotel Let in New York—Inquiry Rate Holds, Topped by 900-Ton Bridge in Calumet District

REINFORCING BAR PRICES, PAGE 73

New York—Concrete bars are slightly more active. Prices, somewhat steadier, appear to be at bottom, and large distributors predict a $2 advance within two weeks. Prices still are mixed. On large warehouse lots 2.44c is fairly firm, while shading continues on 2.00c, and 1.75c, Pittsburgh, for cut and mill lengths, respectively.

Boston—Gloucester, Mass., let 135 tons for a water works project. Otherwise only 150 to 200 tons in small jobs was awarded.

Pittsburgh—Concrete reinforcing bars are slightly less active. Incoming tonnage is below the May rate but compares favorably with June tonnage. Orders are in their former number but tonnages are smaller. The market generally is 1.75c and 2.00c but some tonnage is going at $2 less.

Buffalo—Reinforcing bar orders continue small but the outlook is better. A 600-ton market, to be erected by New York Central railroad is up.

Cleveland—Since 300 tons, the administration building for Cleveland's board of education, went to Republic Steel Corp., awards have been confined to jobs taking 100 tons or less.

Chicago—Outstanding in reinforcing bar inquiries is the 900-ton plant addition, State Line Generating Co. A fabricator here was awarded 250 building, St. Paul. A fair tonnage of Illinois road work is pending. Another letting of about 13 miles, or about 130 tons, will take place soon.

Birmingham, Ala.—New concrete bar business is being added to that already on books and prospects are bright.

Awards Compared

	Tons
Awards this week	**9,873**
Awards last week	**3,362**
Awards two weeks ago	**6,543**
Awards this week in 1929	**6,297**
Average weekly awards, 1929	**5,849**
Average weekly awards, 1930	**7,007**
Average weekly awards, June	**7,338**
Total awards to date, 1929	**190,492**
Total awards to date, 1930	**210,212**

Contracts Placed

3500 tons, Fourth street bridge, Los Angeles, to Soule Steel Co., Los Angeles.

1140 tons, bridges and underpasses, Mt. Vernon memorial highway, Washington and northern Virginia, to Kalman Steel Co., Chicago; Merritt, Chapman & Scott Corp.,

(*Concluded on Page* 81)

Strip

Light Demand Rules and Production Is Low—No Future Buying Being Done

STRIP PRICES, PAGE 73

New York—Strip buying has eased slightly from the recent low rate, with many consuming plants on curtailed schedules. Practically no advance buying is being done. Mill operations are largely dependent on current business and backlogs are low. Prices are unchanged at 1.65c to 1.70c, Pittsburgh, for wide hot-rolled strip. Hot narrow strip is 1.75c to 1.80c, Pittsburgh. On cold-rolled 2.45c prevails although 2.55c, Pittsburgh, is still done on small lots.

Philadelphia—Asking prices of hot strip now are 1.65c, Pittsburgh, for wide and 1.75c on narrow, with nothing heard now of the recent spread of 1.60c and 1.70. Not much business is coming out to test the market. Cold-rolled strip is firm at 2.45c, Pittsburgh, and several attractive orders have been placed at this figure.

Pittsburgh—Strip demand for prompt shipment continues light, with releases for August shipment restricted. Current specifications are in small lots and production is at 40 per cent. Cold strip continues dull, with production around 25 per cent. Occasional reports of price concessions are heard but the market usually is 1.65c and 1.75c for hot strip and 2.45c for cold-rolled.

Youngstown, O.—Limited specifications and new business characterized the market here for strip steel during the past week. Automotive business, not under contract, is absent. Prices appear stable at 1.75c and 1.65c for the narrow and wide widths.

Cleveland—Additional orders for several hundred tons of wide hot strip were booked the past week at 1.65c, Pittsburgh, narrow at 1.75c. Cold strip orders usually are of a size and character that command 2.55c, Cleveland. The 2.45c price applies on carloads, which are scarce. Hot strip mill operation is about 50 to 60 per cent; cold is lower.

Chicago—Hot-rolled strip mills are operating about 50 per cent with no appreciable backlogs. No fresh tonnage has appeared. Mills are looking for moderate releases of Ford and other automotive tonnage next month. The hot-rolled market is quoted nominally at 1.80c to 1.90c, according to widths, but attractive inquiries bring out concessions of $1 a ton. Little contracting in cold-rolled strip is being done. The price is based on 2.45c, Pittsburgh-Cleveland.

Cold-Finished Orders for Auto Use Heartening

Cold Finished Prices, Page 73

Pittsburgh—Outlook for cold-finished steel bars has been improved slightly by the receipt of August specifications from several automotive interests. The tonnage in some cases exceeds expectations and August promises to show a material improvement over July. Current shipments are light and smaller than the June tonnage with little prospects for improvement before August. Producers profess to be firm at 2.10c.

Cleveland—While one or two sales of cold-finished bars in screw stock went at 2.00c, Cleveland, that figure is now said to be withdrawn and 2.10c reaffirmed. Little inquiry is out to test the market. Orders are small and few and automotive tonnage is particularly low.

Bolts and Nuts Slow; Large Rivet Order Placed

Bolt and Nut Prices, Page 73

Pittsburgh—Specifications for bolts, nuts and rivets continue light, with little improvement in prospect for forward buying. Operations are off further at 40 to 50 per cent. Prices continue 73 off for bolts and nuts and 2.90c, Pittsburgh, for large rivets.

New York—Five carload of rivets are reported sold in the Buffalo district, the largest award in weeks.

Cleveland—Customers are taking only necessities in nuts, bolts and rivets and orders do not aggregate heavily. Operations barely average 50 per cent. Prices, however, are sustained.

Chicago—Specifications for bolts, nuts and rivets are sufficient for 40 to 50 per cent operations. Hardware jobbing demand apparently has not declined in proportion to manufacturing demand, as a number of jobbers report business only about 10 per cent below last year.

Iron Ore Shippers See Turning Point Near

Iron Ore Prices, Page 84

Cleveland—Sentiment in the iron ore industry has improved, after drastic reductions in shipping schedules which are likely to carry the total for the season down to about 50,000,000 tons. Producers in close touch with consumers believe the bottom has been reached and an improvement is expected in the remaining months of the season. Buyers are not in the market at present. Ore consumption decreased in June and stocks at Lake Erie docks and at blast furnaces July 1 were 1,998,738 tons more than on July 1, 1929, as shown by the following report from the Lake Superior Iron Ore association:

	Tons
Ore consumed in May	4,715,379
Ore consumed in June	4,288,471
Decrease in June	426,908
Ore consumed in June, 1929	5,676,652
Ore at furnaces July 1, 1930	21,087,111
Ore on Lake Erie docks July 1, 1930	4,612,638
Total at furnaces and Lake Erie docks July 1, 1930	25,699,749
Total July 1, 1929	23,701,011

Semifinished Sales Mainly in Small, Spot Lots

Semifinished Prices, Page 84

Pittsburgh—Semifinished steel consumers are doing little contracting or forward buying, most purchases being for small spot tonnages. Consumers permitted stocks to decline over the past six to eight weeks and heavier buying is looked for within the next 30 days. Prices lack a test of large tonnages but usually continue $31 for rerolling billets, sheet bars and slabs. Wire rods are quiet at $36, with skelp usually 1.70c.

Philadelphia—Billets generally continue $31, Pittsburgh, for rerollers, plus $5 a ton for forging quality. Occasional concessions of $1 are noted on desirable business.

Youngstown, O.—Demand for semifinished steel is almost at the vanishing point. An order for a small tonnage of sheet bars was placed at the prevailing price of $31, mill. No new business in billets, slabs, or wire rods was developed.

Cleveland—The leading merchant producer of semifinished steel increased its active open hearths from four to eight for this week, on an accumulation of orders for sheet bars, billets and slabs. The general market, however, is quiet. Orders are limited to small, spot lots.

Concrete Awards

(*Continued from Page 77*)

general contractors.

700 tons, Waldorf-Astoria hotel, New York, to National Bridge Works, Long Island City, N. Y.; previously reported to same company as unstated tonnage; Thompson Starrett Co., general contractor.

650 tons, Aptos school, San Francisco, to Gunn, Carle & Co., San Francisco.

400 tons, office building, house of representatives, Washington, to Hudson-Daugherty Co., Washington.

400 tons, office building, Radio Corp. of America, Lexington avenue and Forty-first street, New York, to National Bridge Works, Long Island City, N. Y.; A. H. Hartridge Inc., general contractor.

400 tons, subway section, 106, route 7, New York, to McClintic-Marshall Co., Pittsburgh; Dimarco-Reimann Co., general contractor.

300 tons, administration, board of education, Cleveland, to Republic Steel Corp., Hunkin-Conkey Construction Co., general contractor.

300 tons, gymnasium and pool, Yale university, New Haven, Conn., to Joseph T. Ryerson & Son Inc., Chicago; Marc Eidlitz & Son, New York, general contractors.

250 tons, building, First National bank, St. Paul, to Kalman Steel Co., Chicago.

225 tons, factory, Becker, Smith & Page Inc., Philadelphia, to American Steel Engineering Co., Philadelphia.

200 tons, F. A. regimental barracks, Fort Bragg, N. C., to Wilson, Weesner, Wilkerson Co., Nashville, Tenn.; V. L. Nicholson Co., Knoxville, general contractor.

150 tons, lion house, Chicago zoological gardens, Chicago, to Concrete Engineering Co., Chicago.

135 tons, water works project, Gloucester, Mass., to Concrete Steel Co., Youngstown, O.

110 tons, store, S. S. Kresge Co., Providence, R. I., to Concrete Steel Co., Youngstown, O.

110 tons, addition, 45 East Thirty-third street, New York, to Berkshire Iron Works, Brooklyn, N. Y.; B. F. Butler, general contractor.

103 tons, Magnin's store, Oakland, Calif., to Gunn, Carle & Co., San Francisco.

100 tons, plant addition, Standard Underground Cable Co., Perth Amboy, N. J., to Igoe Bros., Newark, N. J.

100 tons, work including Brecksville road bridge, near Cleveland, to Truscon Steel Co., Youngstown, O.

100 tons, building, W. S. Tyler Co., Cleveland, with two other small jobs, to Paterson-Leitch Co., Cleveland.

100 tons, plant, Firestone Rubber & Tire Co., Baltimore, to Dietrich Bros., Baltimore.

100 tons, foundations for office building, house of representatives, Washington, to Hudson-Daugherty Co., Washington, C. F. Tompkins, general contractor.

100 tons, branch, East New York Savings Bank, 2644 Atlantic avenue, Brooklyn, N. Y., to Gold Seal Iron Works, Brooklyn; Caye Construction Co., general contractor.

Contracts Pending

900 tons, plant addition, State Line Gen-

(*Concluded on Page 92*)

Pipe

Municipal Inquiry Mounts—Eight Awards Total 3935 Tons —75,000-ton Steel Line Let

PIPE PRICES, PAGE 95

New York—Cast pipe buying, off for several weeks, shows signs of returning activity. Utilities are slow to cover on second half requirements. One interest is out for 2200 tons of large size. Recent bidding brought out some easier prices at eastern foundries. Bids on 215 tons of 6-inch for Yonkers brought out $39.80, delivered, as low. Southern prices appear firmer. Backlogs have been materially reduced. Operations also have slumped. Small lot buying continues fair. Most business holds at $36 to $37, eastern and southern foundries.

Boston—Round tonnage bookings of cast pipe aggregated less than 1000 tons during the past week. Many other orders called for a car or two at a time. Prices show an easier trend, averaging $35 per ton at foundry, although usual quotations are $36 and $37. In some cases the usual $3 differential for class A and gas pipe has been shaded. Putnam, Conn., awarded 600 tons to R. D. Wood & Co., who while high bidder received the contract because of the provisions of a 3-year contract now expiring.

Pittsburgh—Pipe mills are booking little tonnage. Their backlogs give them a favorable operating position on large diameter lapwelded and seamless material. National Tube Co. was awarded 75,000 tons for the 1400-mile gasoline pipe line, 6 and 8-inch for Great Lakes Pipe Line Co., formed by the Barnsdall Corp., as noted last week. This line will run from Barnsdall, Okla., to Des Moines, Iowa, with branch lines to Minneapolis, Omaha and Milwaukee. A Barnsdall Corp. line planned earlier this year involved only 800 miles. Contracts have been awarded by Continental Construction Co. for the 1000-mile pipe line from Texas to Chicago. It is understood, the pipe will be furnished by National Tube Co. and A. O. Smith Corp. Standard pipe continues seasonally quiet. Oil country goods is in steady demand. Other tubular products are dull.

Youngstown, O.—No new tonnages of oil field pipe were placed last week. Several unplaced projects are engaging mill attention. Contracts may be let shortly although some may be delayed for months. Specifications for lapwelded pipe are fair.

Buffalo—Demand for pipe continues excellent in the oil regions near here. Additional drilling and pressure plant construction will be continued until cold weather in both northern Pennsylvania and western New York fields.

Cleveland—Jobbers continue to take single carloads in standard full weight merchant pipe. Fairly prompt delivery can be had. This affords a contrast to the situation i nlapweld, where line pipe deliveries in most cases are late 1930 or early 1931.

Chicago—Private buying of cast water and pressure pipe remains near last year's volume. Municipal inquiry is in another spurt. Milwaukee waterworks department took bids July 22 on 6500 tons of 36 to 54 inch. Dayton, O., will inquire shortly for a large tonnage. Small lots to contractors and industrials in the North Central markets are fairly active. Garden City, Mich., awarded 2000 tons of 4 to 16-inch. Chicago delivered quotations for 6 to 24-inch cast are $45.20 to $46.20.

Birmingham, Ala.—Production and shipment of cast pipe shows little change as July gets under way.

Contracts Placed

2000 tons, 4 to 16-inch cast pipe for Garden City, Mich., waterworks, to United States Pipe & Foundry Co., East Burlington, N. J.

600 tons, 6, 8 and 16-inch cast pipe for Putnam, Conn., to R. D. Wood & Co., Florence, N. J.

384 tons, 6 to 16-inch class B cast pipe, Boreno boulevard improvement, San Diego, Calif., to unstated interest.

270 tons, 12-inch cast pipe for Bronx, N. Y., to United States Pipe & Foundry Co., East Burlington, N. J.

215 tons, 6-inch cast pipe for Yonkers, N. Y., to Donaldson Iron Works, Emaus, Pa.

200 tons, 6 and 8-inch cast pipe for Northampton, Mass., to United States Pipe & Foundry Co., East Burlington, N. J.

141 tons, 4 to 8-inch class 150 cast pipe for Eureka, Calif. to American Cast Iron Pipe Co., Birmingham, Ala.

125 tons, 6 to 36-inch cast pipe for Gloucester, Mass., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

Steel Pipe Orders

75,000 tons, 1400-mile pipeline, 6 and 8-inch, Great Lakes Pipe Line Co., to run from Barnsdall, Okla., to

THIS man is the symbol of the new day in manufacturing . . . the symbol of speed, accuracy, uniformity.

He is the reason for the growing dependence, of manufacturers the world over, on those very qualities in the famous EMPIRE line of bolts, nuts and rivets.

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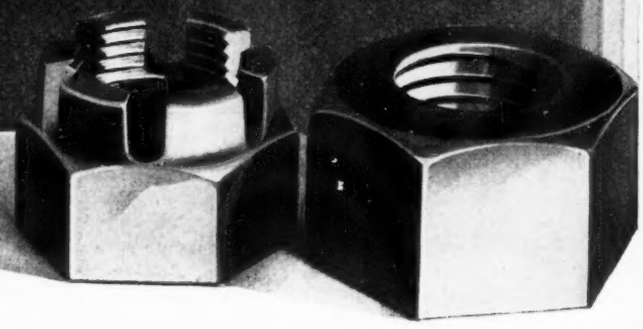


Des Moines, Iowa, to National Tube Co., Pittsburgh .

Contracts Pending

6500 tons, 36 to 54-inch cast pipe for Milwaukee; bids July 22.
Unstated tonnage, for Dayton, O.
800 tons, 12-inch cast pipe for Richmond, N. Y.; Empire Contracting Co., general contractor.
260 tons, 6 and 10-inch cast pipe, class 150 and 250 for San Francisco; bids received.
205 tons, 4 and 6-inch cast pipe class B, Compton street improvement, Compton, Calif.; bids received.

Steel Pipe Pending

Unstated tonnage, 112 miles, 12, 14 and 16-inch gas line from Quinton, Okla. gas fields to Tulsa, Okla.; general construction contract to Williams Bros., Tulsa.

Operations Gain Slightly; Close to 60 Per Cent

Chicago—Due in part to hot weather, affecting particular sheet mill activity, ingot output shows further decline to slightly under 60 per cent. Illinois Steel Co. has banked another blast furnace at South Chicago, making five active there, five at Gary and one at Joliet. Inland Steel Co. has one furnace out for relining, while Wisconsin Steel Co. has two active and Youngstown Sheet & Tube Co. one stack in blast. Thus 17 of the 36 are blowing.

Buffalo—Buffalo steelworks increased production from 53 to 59 per cent this week. This is an advance from the 48 per cent rate in the early part of this month.

Pittsburgh—Steelmaking operations continue about 60 per cent. Finishing mill schedules continue to decline with sheet production at 45 to 50 per cent and tin plate 65 to 70. Strip mills continue at 40, with pipe at 75.

Youngstown, O.—Mill operations are close to 60 per cent. Independent mills are at about 60 per cent and the Corporation at 55 per cent. Of 120 independent sheet mills 50 are active. Falcon plant of Empire Steel Co. has resumed production. Strip mills have gained 5 per cent to about 65 per cent.

Cleveland—For the third consecutive week steelmaking operations have increased, reaching 60 per cent of capacity for this week, with 20 or 34 open hearths active.

Birmingham—Operations of steelworks are close to 70 per cent of ingot capacity, with 16 active open hearths out of 23. Tennessee Coal, Iron & Railroad Co. has added three open hearths at Ensley, Ala., and started its rail mill and an additional blast furnace.

Wire

Smaller Buying Restricts Output—Concessions Continue To Be Made in Certain Areas

WIRE PRICES, PAGE 73

Chicago—Manufacturers' wire tonnage has picked up, due to one or two good orders and this does not indicate general buying. Merchant wire products are slow. The weak copper market has developed uncertainty in steel electrical wire. The wire nails price range is regarded now at $2.10 to $2.15, Pittsburgh-Cleveland. Galvanized wire is 2.80c to 2.90c, Chicago or western mills, and annealed fence wire remains at 2.35c to 2.45c.

Worcester, Mass.—Wire manufacturers are showing more confidence. Comparisons between 1930 shipments and those of 1928, 1927, 1926 have so far convinced them that 1930 is really not so bad except when compared with the extraordinary business of 1929. Plain bright wire to dealers is holding firm at 2.40c, base, Worcester.

New York—Nail buying is slow. The $2.15 Pittsburgh base price is being shaded to $2.10 frequently and on larger lots $2.05 has been done. Plain steel wire at 2.30c, Pittsburgh, is holding better than most wire products, although buying is slack. Specialties suffer due to the highly competitive market.

Pittsburgh—Incoming wire tonnage shows a further moderate decline. Nails are dull while manufacturers' wire is adversely affected by light automotive demand. Prices are unchanged, with $2.15 on wire nails best observed in the Pittsburgh district but easy in other sections. Producers have encountered little pressure against 2.30c on plain wire while wire rods continue $36.

Cleveland—A leading producer of wire nails has jobber orders at $2.15, Cleveland. One large tonnage buyer of wire taking several hundred tons at a time paid 2.30c, Cleveland, after claiming to have a lower quotation. Demand generally is low and orders scattered.

Warehouse Sales Small but Volume Steady

Warehouse Prices, Page 95

Chicago—Improved sentimental position is shown although no general upturn has developed. Some strong spots in buying have appeared. Products are well distributed. Sheet buying is fair, and seasonal mill orders for outdoor roofing from the Southwest may turn over some local business to the warehouses. Prices for wire products are irregular. As low as $2.30 is being named for nails in lots of ten kegs and over. Smaller orders are $2.50 per 100-pound keg. Until recently, quotations were $2.75 to $2.85.

Boston—Warehouse business reflects moderately good building. Prices are steady, and collections good.

Buffalo—Warehouse situation is unchanged, with orders of fair proportions and some lines showing improvement. Small structural shapes and sheets have been selling in larger quantities. Quick service by mills is holding down warehouse business.

New York—Movement of steel out of warehouse is not active. Prices are unchanged and generally firm since recent reductions. Volume is about the same as earlier in the month. Orders are small, but slightly more numerous. Light structural material demand is spotty.

Philadelphia—Jobbers report somewhat better feeling but volume of sales is only slightly improved. Prices are unchanged.

Pittsburgh—Sales continue slow but unchanged from recent weeks. Small-lot orders predominate. Sheet demand is fairly steady, heavy products dull.

Cincinnati—Warehouse demand continues without feature. Business for July will probably equal June. Prices are unchanged.

St. Louis—Some improvement in warehouse buying is noted from highway contractors, public utilities and southwestern oil fields. Sheets, especially galvanized, lag. Tin plate is in fair demand. Building lines are slow. Prices are steady.

Customs Has New Bureau

Washington—A division of appeals and protests has been organized in the customs bureau of the treasury department. Charles Stevenson, supervising customs agent at Tampa, Fla., will be the chief of the new division. The new division will handle complaints where it is believed foreign commodities are being dumped on the American market or are being sold here at prices unfair to industry and labor of the United States.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY NO. 2

Chicago, furnace	$18.00
Pittsburgh, district fur.	18.50
Pittsburgh, delivered	19.13 to 19.63
Valley, furnace	18.00
Cleveland fur., local del.	18.00
Philadelphia, delivered	19.76
Virginia, furnace	17.75
Granite City, Ill., fur.	18.50 to 19.00
Buffalo, fur., local del.	18.50
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail Brooklyn	20.91 to 21.41
Buff., all-rail, Newark	19.28 to 19.78
Ala., Bir. fur., local del.	14.00
Alabama, del. Chicago	18.01
Alabama, del. St. Louis	17.42
Alabama, del. Cincinnati	16.19 to 17.19
Alabama, del. Cleveland	18.51 to 19.01
Ala., Phila., dock del.	17.25 to 18.25
Ala., Balt., dock del.	17.00 to 18.00
Alabama, New York dock	18.00 to 18.50
Ala., Boston dock del.	20.21
Tenn., Bir. base, local del	14.00
Tennessee, del. Cin.	16.69 to 18.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	19.00
Buff., all-rail, Brooklyn	21.41 to 21.91
Buffalo, all-rail, Newark	19.78 to 20.28
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del., Phila.	20.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	20.00
Eastern, del., Phila.	20.76

MALLEABLE

Chicago, furnace	18.00
Cleveland fur., local del.	18.00
Pittsburgh district fur.	19.00
Pittsburgh, delivered	19.63 to 20.13
Valley furnace	18.50
Buffalo fur., local del.	19.00
Eastern Penn., delivered	19.76 to 21.41
Granite City, Ill., fur.	18.50 to 19.00
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh dist. fur.	18.50
Pittsburgh, delivered	19.13 to 19.63
Eastern Penn., del.	18.00 to 18.50
Buffalo fur., local del.	18.00
Montreal, delivered	22.50
Valley furnace	18.00

BESSEMER

Valley furnace	18.50
Pittsburgh, delivered	20.26

LOW PHOS

Valley fur., standard	27.00
Philadelphia, standard	24.26 to 24.76
Furnace, copper-bearing	23.00 to 23.50

GRAY FORGE

Pittsburgh district fur.	18.00
Pittsburgh, delivered	18.63 to 19.13

CHARCOAL

Lake Superior, del. Chicago	27.04

SILVERY

Jackson County, O., fur., in per cents

5—$21.50; 6—$21.50; 7—$22.00; 8—$22.50 to $23.00; 9—$23.00 to $24.00; 10—$23.50 to $27.00; 11—$24.50 to $28.00; 12—$25.50 to $30.00; 13—$26.50 to $32.00.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents

10—$29; 11—$31; 12—$33; 13—$35; 14—$37; 15—$39; 16—$42; 17—$45.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.50 to 2.60
Connellsville foundry	3.50 to 4.85
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit ovens	8.50
Philadelphia, del.	9.00

Iron Ore

LAKE SUPERIOR ORE

Gross Ton, 51½%, Lower Lake Ports

Old range	$4.80
Mesabi	4.65
Old range	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58.65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.50 to 11.00
North African low phosphorus	10.50
Swedish basic, 65%	9.50 to 10.50
Swedish low phos.	11.00
Spanish, North African basic, 50 to 60%	9.50 to 10.00
Newfoundland fdy., 55%	9.00
Tungsten, spot and future, short ton unit, duty paid	12.00 to 12.50
Chrome ore, 48%, net ton c.i.f.	$21.50 to 22.50

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	30 cents
Indian, 48-50%	30 cents
Brazilian, 46-48%	28 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$43.00
Georgia, Alabama	40.00 to 47.00

Second Quality

Pennsylvania, Ohio, Illinois Kentucky, Missouri, Maryland	35.00 to 38.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham, Ala.	50.00 to 51.00

MAGNESITE BRICK

Per net ton

9 x 4½ x 2½	65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore base	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	45.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$31.00
Pittsburgh, bessemer	31.00
Youngstown	31.00
Cleveland	31.00
Philadelphia	36.30 to 37.30
Chicago	32.00
Forging, Chicago	37.00
Forging, Pittsburgh	36.00
Forging, Philadelphia	41.30 to 42.30

SHEET BARS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00
Chicago	32.00

SLABS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00

WIRE RODS

Pittsburgh, Cleveland	$36.00
Chicago	37.00

SKELP

All grades, Pittsburgh	1.70c to 1.75c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$99.00
*Ferromanganese, del. Pittsburgh	103.70
Spiegeleisen, 19-21%, domestic fur. spot†	33.00
*Ferrosilicon, 50 per cent, freight all., c. l.	83.50
*Do, less carload	88.50
Do, 75 per cent	13.00 to 15.00
Ferrochrome, 66-70 chromium, 4-6 carbon. cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.20
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do. one ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton, carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	19.50 to 20.50

NATIONAL

NATIONAL COPPER-STEEL PIPE

The Original COPPER-STEEL PIPE

NATIONAL Tube Company was the first manufacturer of Copper-Steel Pipe. In addition to being the pioneer in making Copper-Steel Pipe, this Company has contributed a large share of the research and experiments necessary to definitely establish the fact that a small amount of pure copper added to steel makes it more resistant to atmospheric corrosion. Nearly twenty years of observation, laboratory and field tests and actual service records are behind the development of NATIONAL Copper-Steel Pipe.

Time-tested and quality proven — backed by the experience and resources of the largest manufacturer of wrought tubular products in the world — NATIONAL Copper-Steel Pipe is the logical choice for all services where the pipe is exposed to atmospheric corrosion due to alternate wet and dry conditions, particularly for soil, waste, vent lines and rain leaders, hand railings, etc. in commercial buildings, industrial plants, factories and shops.

To secure the benefit of the experience of pioneers in making this product, be sure to specify —

NATIONAL COPPER-STEEL PIPE—*The Original Copper-Steel Pipe*

NATIONAL TUBE COMPANY

Frick Building, Pittsburgh, Pa.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES OF UNITED STATES STEEL CORPORATION:

American Bridge Company	Carnegie Steel Company	Illinois Steel Company	The Lorain Steel Company
American Sheet and Tin Plate Company	Cyclone Fence Company	Minnesota Steel Company	Tennessee Coal, Iron & R. R. Company
American Steel and Wire Company	Federal Shipbuilding and Dry Dock Company	National Tube Company	Universal Atlas Cement Company

Pacific Coast Distributors–United States Steel Products Co., Columbia Department; San Francisco, Los Angeles, Portland, Seattle, Honolulu. *Export Distributors*–United States Steel Products Co., New York City

Pig Iron

Sales Small—Prices Show Easier Trend—Inquiries Increase to 15,000 Tons at Chicago

PIG IRON PRICES, PAGE 84

Pittsburgh—Signs of improved pig iron buying are absent, new tonnage representing only immediate requirements. Most producers report a reduction in business and shipments from the June rate, although one interest states its sales are the best since May. Demand for basic iron is near the lowest level of the year. Prices are unchanged at $18, valley, for No. 2 foundry and basic, and $18.50 for bessemer and malleable. Struthers Iron & Steel Co. is to blow out one furnace this week, leaving only two of seven strictly merchant stacks in the valley in blast.

Boston—A slight improvement is noted in the market. Sales in the past week amounted to 2200 tons, of which Mystic Iron Works, Everett, Mass., booked 1300 tons. Some machine tool builders anticipate orders soon for which they will need iron.

New York—General Electric Co. has placed about 2000 tons of foundry iron for various plants. Eastern Malleable Iron Co., Naugatuck, Conn., has bought a tonnage of malleable iron. Thatcher Furnace Co.'s inquiry for 2000 tons of No. 2 foundry iron for Garwood, N. J., has not been closed. Foundry operations are at a low ebb. Foundry iron continues $16, base, Buffalo, for this district, subject to equalizing of freight rates and occasional waiving of silicon differentials.

Buffalo—Inquiry is being covered slowly. Shipments have improved, considerable iron being moved to the eastern seaboard by barge canal. The $16 base is said to be firm in the East but No. 2X iron is being sold at this level when large tonnage is wanted. The Buffalo district price continues $18.50, base, furnace.

Youngstown, O.—Merchant stacks, as well as steel mill furnaces, are doing practically no new pig iron business. Reacting to recent sales in the Pittsburgh area the market here is $18 on basic and No. 2 foundry.

Cleveland—Shipments of pig iron reflect the decline in the melt this month as more foundries close for brief periods. This confirms the impression that July will mark the low point of the year in consumption. Orders consist mainly of small prompt lots, some sellers advising regular customers against closing now for future requirements. Furnace interests with headquarters in Cleveland booked 11,500 tons in the past week compared with 15,500 tons in the week preceding. Inquiry is light, the aggregate amounting to about 4000 tons. Several melters at Canton, O., are in the market for moderate size lots. The price in Cleveland is nominally $18, base, furnace, but the market lacks a test. The usual price for outside delivery is $17.50, base, but sharper competition has brought out $17 more frequently from lake furnaces. Customary quotations in western Ohio and Indiana are $17.50 to $18, but $17 figures in competitive areas. The usual price in Michigan is $18, base, furnace, for shipments outside of Detroit.

Cincinnati—No order for more than 200 tons was represented in a 2000-ton total for the past week. Some southern iron was sold at $12.50, base, Birmingham. A Hamilton, O., inquiry for 500 tons of northern foundry iron and a central Ohio inquiry for 400 tons are pending.

St. Louis—A better tone is apparent in the pig iron market, as regards prospective demand. Producers anticipate an increase in shipments during the remainder of this month and August. A resumption of buying on a larger scale is expected in August or early September for fall and winter requirements. Price uncertainty tends to restrict sales. Southern iron can be had here at a price which figures back to $16.92, furnace. Chicago iron while nominally $18, furnace, is offered at 75 cents to $1 below that figure. The leading local producer continues to quote $18 to $18.50, base.

Birmingham, Ala.—Sales continue small. The report that lower prices have applied on southern iron in outside districts has not affected the local market which is held at $14, base, furnace. Shipments are below output. One stack on foundry iron is to be blown out and another is to be blown in to make basic.

Toronto, Ont.—Melters are buying only small, spot lots, consumption continuing to decrease. The Algoma Steel Corp., Sault Ste. Marie, Ont., blew out one furnace. Of the 11 stacks in Canada only five are operating. Prices are unchanged.

Chicago—Melters continue to press for lower prices on pig iron sold in this district. Quotations for the base grades are $18, Chicago, while dock iron in the Chicago district sells at 50 cents to $1 under the quoted furnace price. Sellers are figuring on inquiries totaling about 15,000 tons. A northern Indiana farm equipment builder purchased 1000 tons of foundry iron. About 400 tons of low phosphorus iron and a small lot of silvery iron have been sold. Middle interests are offering eastern iron in this district, to make up two cargoes for shipment by water soon. Offerings of boat iron strongly influence local merchant iron sales.

Philadelphia—Sales of foundry iron are moderate. Eastern Pennsylvania foundry iron continues $19, base, furnace, subject to occasional concessions.

Ferroalloys Quiet; Contract Spiegeleisen Unchanged

Ferroalloy Prices, Page 84

New York—The reduction of $1 a ton on spiegeleisen, effective July 15, applies to spot carloads only and prices on contracts are not affected. The current market is $33, furnace, for the 19 to 21 per cent grade in carloads, subject to usual differentials on large tonnages. Ferromanganese continues $99, duty paid, tidewater, subject to the usual quantity differentials. Quietness in the tungsten market reflects the lack of activity in tool steel. Wolframite ore is generally quoted about $4 a short ton unit in bond, the new duty being $7.93. This price is nominal as no business has been reported for several weeks.

Pittsburgh—Shipments of most grades of ferroalloys are light and unchanged from the rate of recent weeks, although some sellers report slight gains in certain directions. Ferrotungsten and ferrovanadium remain quiet, with restricted activity in the automotive industry affecting these and other alloys. Ferrotungsten generally is $1.20 a pound. Ferromanganese continues $103.79, delivered, for small lots. Spot buying remains quiet.

D. L. Colwell, Stewart Die Casting Co., has been elected chairman of the Chicago chapter of the American Society for Steel Treating for 1930-31. Other officers are: Vice chairman, Harry Hardwicke, Ludlum Steel Co.; and secretary-treasurer, J. A. Comstock, Peoples Gas Light & Coke Co.

Scrap

Resistance to Lower Prices Is Greater—Reserves Being Built at Present Price Levels

Chicago—Stronger sentiment is shown by dealers in iron and steel scrap, which it is thought may develop a mild rebound in prices. No marked advances seem likely although dealers are hastening the closing of short accounts. Laying down of supplies by steelworks consumers has been of greater importance than generally realized. It is reported that one melter has more than 80,000 tons of melting steel in his yards. Huge tonnages of short rails are reported to have been laid down by a few large steelworks melters. Consumers of borings have large reserves. Due to desire of steelworks consumers to adjust the flow of heavy melting steel shipments to actual melting conditions, continued restrictions are imposed.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

HEAVY MELTING STEEL

Birmingham ..	10.50 to 12.00
Boston dealers	8.75 to 9.00
Buffalo, No. 1..	13.00 to 13.75
Buffalo, No. 2..	11.25 to 11.50
Chicago	12.00 to 12.25
Cinci., deal.....	11.00 to 11.50
Cleve., No. 1....	12.00 to 12.25
Cleve., No. 2....	11.25 to 11.50
Det., No. 1 deal	10.75 to 11.25
Det., No. 2 deal	9.50 to 10.00
E. Pa., del. mill	12.50 to 13.00
N. Y. dl. R. R.	9.00 to 10.50
N. Y. deal No. 2	7.00 to 7.50
N. Y., deal yd.	6.25 to 6.75
Pitts. No. 1	14.50 to 15.00
St. L., No. 1 sel.	11.25 to 11.75
Federal, Ill.	10.75 to 11.25
Granite C., Ill.	10.00 to 10.25
Valleys, No. 1..	14.75 to 15.25

COMPRESSED SHEETS

Buffalo, dealers	11.25 to 11.50
Chicago	10.25 to 10.75
Cleveland	11.50
Detroit, dealers	10.50 to 11.00
E. Pa. new mat.	11.50
Pittsburgh	14.50 to 15.00
Valleys	13.75 to 14.25

BUNDLED SHEETS

Buffalo	9.00 to 9.50
Cinti. deal	10.25 to 10.75
Cleveland	9.00 to 9.25
Eastern Pa.	9.00 to 9.50
Pittsburgh	12.50 to 13.00
St. Louis	6.50 to 7.00

SHEET CLIPPINGS LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Detroit, dealers	8.00 to 8.50
St. Louis	6.50 to 7.00

STEEL RAILS SHORT

Birmingham	11.00 to 12.00
Boston, dealers	7.50 to 8.75
Buffalo	16.25 to 16.75
Chicago (3 ft.)	13.50 to 14.00
Chicago (2 ft.)	14.00 to 14.50
Cinti. deal.....	17.00 to 17.50
Detroit, deal....	15.00 to 15.50
Pitts. (open-hearth, 3 ft. and less)	17.00 to 17.50
St. Louis	14.00 to 14.50

STOVE PLATE

Birmingham ..	10.00 to 11.00
Boston, con.....	8.50 to 9.00
Buffalo	10.50 to 11.00
Chicago, net....	9.50 to 10.00
Cinci., deal, net	8.25 to 8.75
Det., net, deal..	9.00 to 9.50
Eastern Pa.	10.00
N. Y., deal. mill	6.00 to 6.50
St. Louis	9.25 to 9.75

COUPLERS, SPRINGS

Buffalo	16.00 to 16.50
Chicago	13.50 to 14.00
Eastern Pa.	17.00 to 17.50
Pittsburgh	17.00 to 17.50
St. Louis	12.00 to 12.50

ANGLE BARS—STEEL

Chicago	13.00 to 13.50
St. Louis	10.50 to 10.75

LOW PHOSPHORUS

Buf., billets and bloom crops..	17.50 to 18.00
Cleve. bil. and bloom crops.	17.50
Eastern Pa.	18.50 to 19.00
Pitts. billet and bloom crops	19.00 to 20.00
Pitts. sheet bar crops	18.00 to 18.50

FROGS, SWITCHES

Chicago	13.00 to 13.50
St. Louis	11.00 to 11.50

SHOVELING STEEL

Chicago	12.00 to 12.25
Cleveland	8.75 to 9.25
St. Louis	10.50 to 11.00

RAILROAD WROUGHT

Birmingham	10.00 to 10.50
Boston, dealers	7.50 to 8.00
Buffalo, No. 1..	10.00 to 10.50
Buffalo, No. 2..	13.50 to 14.00
Chicago No. 1	11.25 to 11.75
Chicago, No. 2	12.00 to 12.25
Cinti. No. 2.....	11.00 to 11.50
Eastern Pa.	15.00 to 15.50
N. Y., No. 1 dl.	10.50 to 11.00
Pitts. No. 2	14.50 to 15.00
St. Louis, No. 1	9.00 to 9.50
St. Louis, No. 2	11.00 to 11.50

SPECIFICATION PIPE

Boston	6.50 to 7.00
Eastern Pa.	11.50 to 12.00
N. Y., deal	7.25 to 7.50

BUSHELING

Buffalo, No. 1	11.25 to 12.75
Chicago, No. 1	9.50 to 10.00
Cinn., No. 1 dl.	9.25 to 9.75
Cinn., No. 2	6.25 to 6.75
Cleve., No. 2....	8.25 to 8.50
Detroit, No. 1 new deal.	9.75 to 10.25
St. L. No. 1....	9.25 to 9.75
Val. new No. 1	13.00 to 13.50

MACHINE TURNINGS

Birmingham	7.50 to 8.50
Boston, dealers	4.00 to 4.35
Buffalo	8.00 to 8.50
Chicago	6.25 to 6.75
Cinn., deal	7.50 to 8.00
Cleveland	7.00 to 8.00
Detroit	5.75 to 6.25
Eastern Pa.	9.00
N. Y., deal	5.00 to 5.50
Pittsburgh	8.50 to 9.00
St. Louis	6.75 to 7.25
Valleys	10.25 to 10.75

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, deal.....	3.50 to 4.00
Buffalo	9.00 to 9.50
Cinn., deal	8.00 to 8.50
Cleveland	8.75 to 9.25
Detroit, deal....	7.00 to 7.50
Eastern Pa.	7.00 to 7.50
N. Y., deal	4.25 to 4.75
Pittsburgh	8.50 to 9.00

CAST IRON BORINGS

Birming. chem.	12.00 to 13.00
Birming. plain	7.50 to 8.50
Boston, chem...	9.00 to 9.25
Boston, deal. ..	4.00 to 4.35
Buffalo	9.00 to 9.50
Chicago	7.50 to 8.00
Cinn., deal.	8.00 to 8.50
Cleveland	8.75 to 9.25
Detroit, deal. ..	7.00 to 7.50
Eastern Pa.	8.50 to 9.00
E. Pa., chem.	13.50 to 14.00
N. Y., deal.	4.75
Pittsburgh	8.50 to 9.00
St. Louis	9.25 to 9.50

PIPE AND FLUES

Cinn., deal	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	9.25 to 9.75
Chicago, net	8.50 to 9.00
Cincinnati	9.00 to 9.50
Eastern Pa.	10.00
N. Y., deal.....	6.50 to 7.00
St. Louis	10.00 to 10.25

FORGE FLASHINGS

Boston, deal	7.25 to 7.60
Buffalo	11.00 to 11.50
Cleve. ov. 10 in.	10.00 to 10.50
Detroit	9.50 to 10.00

FORGE SCRAP

Boston, deal. ..	6.00 to 6.50
Chicago	14.50 to 15.00
Eastern Pa.	12.50

ARCH BARS, TRANSOMS

Chicago, net ..	13.00 to 13.50
St. Louis	14.00 to 14.50

AXLE TURNINGS

Boston, deal. ..	6.75 to 7.00
Buffalo	11.50 to 12.00
Chi. steelworks	9.50 to 10.00
Cleveland	11.75 to 12.00
Eastern Pa.	10.00 to 11.00
Pittsburgh	12.50 to 13.00
St. Louis	9.25 to 9.75

STEEL CAR AXLES

Birmingham ..	19.00 to 20.00
Bos., ship. pt.	16.00 to 17.00
Buffalo	16.00 to 16.50
Chicago	16.80 to 17.35
Eastern Pa. ..	21.00 to 21.50
St. Louis	16.00 to 16.50

SHAFTING

Bost., ship pt.	13.00 to 15.00
Chicago	16.25 to 16.80
Eastern Pa.	18.00 to 18.25
N. Y., deal.	13.00 to 14.00
St. Louis	13.00 to 13.50

CAR WHEELS

Birming., iron..	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron....	13.50 to 14.00
Buffalo, steel ..	16.00 to 16.50
Chicago, iron....	13.50 to 14.00
Chi., roll steel	14.50 to 15.00
Cincinnati	12.00 to 12.50
N. Y., iron, dl.	10.00 to 10.50
Pitts., iron	15.50 to 13.00
Pitts., steel	17.00 to 17.50
St. Louis, iron	12.00 to 12.50
St. Louis, steel	13.75 to 14.25
E. Pa. steel....	13.50 to 14.00
E. Pa. iron	14.50 to 15.00

NO. 1 CAST SCRAP

Birming.. cup...	12.00 to 13.00
Buffalo (mac.)	13.00 to 13.50
Boston, textile..	11.50 to 12.00
Chicago, mach.	13.45 to 14.00
Chi., railroad....	11.20 to 11.75
Chicago, agri...	10.90 to 11.50
Cinn., mach. cup., gross ..	17.75 to 18.25
Cleve, cupola ..	14.00 to 14.50
Det., net deal....	10.00 to 10.50
E. Pa. cupola..	13.50
N. Y. cup. deal.	9.50 to 9.75
N. Y., del. loc. foundries	14.00
Pitts. cupola....	14.00 to 15.00
San Fran., del.	13.50 to 14.00
Seattle	14.00 to 14.25
St. L. No. 1 ma.	12.00 to 12.50
St. L. No. 1	11.00 to 11.50

HEAVY CAST

Boston	10.50 to 11.00
Bos. Mach. cast	13.50 to 14.00
Buffalo, break.	8.50 to 9.00
Cleve., break...	9.00 to 9.50
Detroit, auto, net deal.	11.50 to 12.00
Det., break., dl.	7.00 to 7.50
Eastern Pa.....	11.50 to 12.00
N. Y. No. 1 dl.	8.00 to 8.50
N. Y. break. dl.	7.25 to 8.60
Pittsburgh	11.50 to 12.00

MALLEABLE

Boston, R. R.....	15.00 to 15.50
Buffalo	15.00 to 15.50
Chicago, agri...	11.75 to 12.25
Chicago, R. R.	13.50 to 14.00
Cinn., R. R. dl.	15.25 to 15.75
Cinn., agri., dl.	14.25 to 14.75
Cleve., rail	16.00 to 16.50
Det. auto deal.	13.50 to 14.00
St. Louis, rail..	11.00 to 11.50

RAILS FOR ROLLING
5 feet and over

Birming. cup...	12.00 to 12.50
Boston	9.00 to 9.50
Buffalo	13.50 to 14.00
Chicago	14.50 to 15.00
Eastern Pa	13.00 to 13.50
New York	9.50 to 10.00
St. Louis	12.00 to 12.50

LOCOMOTIVE TIRES

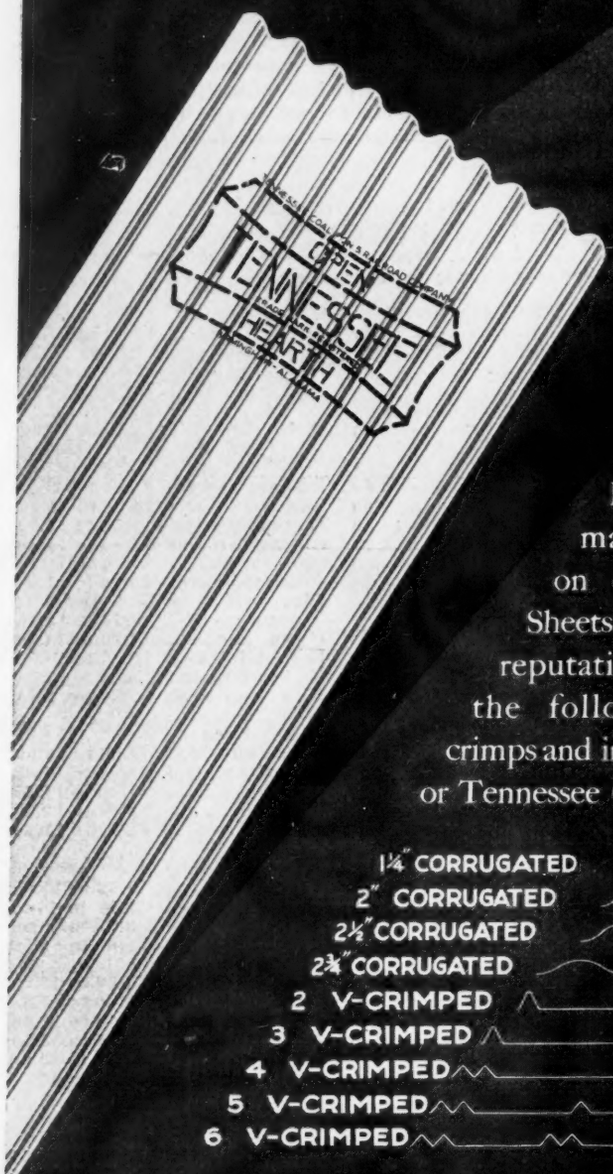
Chicago, cut	15.00 to 15.50
St. L. No. 1.....	13.00 to 13.50

LOW PHOS. PUNCHINGS

Chicago	13.00 to 13.50
Pittsburgh	17.50 to 18.00
Eastern Pa.	17.00 to 18.00
Buffalo	17.00 to 17.50

TENNESSEE

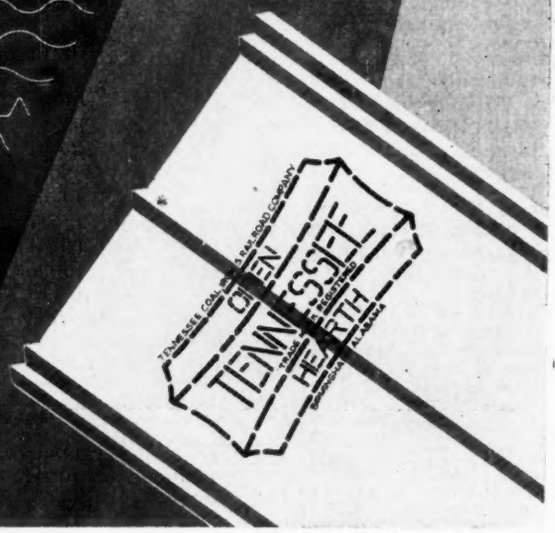
Galvanized Roofing *and* Siding



Produced on modern mills and manufactured with an emphasis on quality, Tennessee Galvanized Sheets have built up an enviable reputation. Can be furnished in the following corrugations and crimps and in Tennessee Open Hearth or Tennessee Copper Steel Quality—

- 1¼" CORRUGATED
- 2" CORRUGATED
- 2½" CORRUGATED
- 2¾" CORRUGATED
- 2 V-CRIMPED
- 3 V-CRIMPED
- 4 V-CRIMPED
- 5 V-CRIMPED
- 6 V-CRIMPED

WE ARE ALSO MANUFACTURERS OF BLUE ANNEALED, BLACK AND SPECIAL FINISH SHEETS



Tennessee Coal, Iron & Railroad Company

General Offices: Brown-Marx Building, BIRMINGHAM, ALA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

American Bridge Company	Carnegie Steel Company	Illinois Steel Company	The Lorain Steel Company
American Sheet and Tin Plate Company	Cyclone Fence Company	Minnesota Steel Company	Tennessee Coal, Iron & R. R. Company
American Steel and Wire Company	Federal Shipbuilding and Dry Dock Company	National Tube Company	Universal Portland Cement Company

Pacific Coast Distributors—United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle, Honolulu. *Export Distributors*—United States Steel Products Company, New York City

Surplus on track is quickly absorbed, however. Melting steel remains at $12 to $12.25, the range being nominal. Lower asking prices are reported for rolled steel car wheels and locomotive tires, and 2 and 3-foot rail crops have been cut 50 cents by some dealers. Several iron rolling mill grades also are off 25 to 50 cents.

Boston—Demand for iron and steel scrap remains quiet and prices resist further pressure downward. Cast iron borings are firmer and forge flashings are stronger. Cast scrap was weak. Buying is not sufficient to indicate tendencies with clearness.

New York—Scrap prices are unchanged with little buying. Heavy melting steel is fairly firm at $12.50, Coatesville. Buyers are taking scrap close to needs and specifying immediate delivery on the small tonnage placed.

Philadelphia — Bethlehem Steel Co. has bought a tonnage of blast furnace borings and turnings at $7, delivered, Bethlehem, and the market on this grade of scrap now generally may be quoted at $7 to $7.50, delivered at Eastern Pennsylvania blast furnaces.

An easier tone is reflected and on scattered sales a number of grades have been reduced.

Buffalo — Complete inactivity marks the local scrap market, both as to new purchases and deliveries to consumers. Prices are nominal and yard operation at the lowest point in years.

Cleveland—Sentiment in iron and steel scrap is slightly better, due mostly to improved tone at Youngstown where dealers are paying somewhat more for No. 1 heavy melting steel for shipment against contract. This, however, has not as yet been reflected in increased activity locally. Larger consumers have placed no orders with dealers for several weeks and the latter are taking in material only at bargain prices. Melting steel is relatively scarce here and in the Valley.

Pittsburgh—Iron and steel scrap shows less activity, with additional holdups of shipments to some mills. Increasing quiet is caused by light demand in most grades in a nominal market. Dealers are picking up heavy melting steel at $14.50 and sometimes less. This grade is quotable at $15 maximum, although the supply is limited. Blast furnace grades continue in relatively poor demand.

Cincinnati—Prices of iron and steel scrap remain unchanged. Two railroads have withdrawn tonnage ostensibly to await better prices. Walter-Wallingford Co., Cincinnati, has bought 53 locomotives from the Florida East Coast railroad some of which will be restored to service and some scrapped.

St. Louis—Buying of iron and steel scrap continues slow and specifications until the past two days were disappointing. In the immediate past more tonnage has been ordered out, and outlook for the balance of the month is more hopeful. Mills are trying to pick up tonnage at extreme bargain prices. Their offering prices, however, are considerably below what dealers are able to get the material for.

Detroit—Prices of iron and steel scrap show no change and the opinion gains that bottom has been reached. Mills are inquiring more freely for supplies to build a backlog at present prices. Indications are that prices are likely to stiffen in a short time.

Birmingham, Ala.—Iron and steel scrap continues slow with prices low and a limited tonnage moving. Resumption of operations of several open-hearth furnaces may bring about need for more melting steel. Iron scrap is dull.

Toronto, Ont.—Demand for iron and steel scrap in Canadian markets has dropped to a low level. According to dealers sales for the week were decidedly light with few orders appearing for lots of one to two cars. No future buying is being done.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$15.00
Steel axles	13.00
Car wheels	11.00
Stove plate	10.00
Wrought pipe	5.00
Turnings	6.00
Heavy melting steel	8.00

TORONTO

Steel axles	10.00
Iron axles	13.00
Heavy melting steel	9.00
Turnings	6.50
No. 1 mach. cast (net)	11.00
Malleable (net)	9.00

Coke

Connellsville Furnace Fuel Stronger as Production Is Restricted—Markets Are Quiet

COKE PRICES, PAGE 84

Pittsburgh—Continued restriction in beehive coke production has resulted in light available supplies and sellers of the furnace grade now quote $2.60, compared with a recent price of $2.50. Demand remains dull, sales generally being limited to a single carload or a few of them at a time, providing little test of prices. The market for foundry coke is quieter but prices are steady.

Production of coke in the Connellsville region for the week ended July 12 was 24,580 tons, compared with 21,200 tons the preceding week, and 101,840 tons in the same period a year ago, according to the *Connellsville Courier*.

Boston—Demand for furnace and foundry coke is quiet. Sales of domestic grades have improved following the announcement of a 50-cent increase per ton, effective Aug. 1.

New York—Specifications against second half coke contracts continue small. By-product foundry coke continues $9 to $9.40, delivered at Newark, N. J., $11, delivered in New England, and $9, delivered in Philadelphia. Premium brands of beehive coke continue $4.85, Latrobe, Pa., with standard brands $3.50 to $3.75, Connellsville. Beehive furnace coke is weak at $2.50 to $2.60.

Buffalo — Demand for foundry coke is dull. Connellsville grades are coming in at low prices, a range of as much as $1.50 a ton being reported in Buffalo.

Cincinnati—Contracts for 2000 tons of by-product foundry coke have been signed here. Shipments are reduced, reflecting dull foundry conditions. Wholesale prices on domestic grades will be increased 25 cents Aug. 1.

St. Louis—Operations at a number of jobbing foundries and stove plants have increased slightly, accompanied by gain in orders for coke since July 15. Stocks at by-product plants have continued to increase and are considerably above those noted at this time last year.

Birmingham, Ala.—A shipment of by-product foundry coke is enroute from this district to California by way of the Panama canal, and more of this trade is anticipated.

Pacific Coast

Better Rail and Water Rates Apply to Steel from Mid-Western Mills—Most Water Projects Completed and Market Is Dull—Reinforcing Bar Prices Are Advanced at San Francisco

Seattle—Iron and steel products and tin plate are included in commodities affected by new through freight rates effective July 28 between points in the Middle West and North Pacific ports. These through rates cover Illinois and portions of Indiana, Ohio and Kentucky. The tariff about to be issued by the Illinois freight association tariff bureau includes shipments over the Illinois Central, Chicago & Eastern Illinois, Louisville & Nashville and Mobile & Ohio roads, connecting at Mobile or New Orleans with the Luckenback, Redwood and Gulf-Pacific lines for points in California, Oregon and Washington.

Heretofore these through rates have applied only between the Illinois Central and the Redwood Steamship Co. but under the new arrangement additional railroads and the other two water lines operating out of Gulf ports are included.

Coast Pig Iron Prices

Utah basic	$25,00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Several weeks ago a reduction of 4 cents per hundred weight on iron and steel from Gulf points to the North Pacific was announced by the steamship lines to place the Middle West on parity with producing centers adjacent to North Atlantic terminals. Through rates from the Chicago territory range from 59½ to 66 cents, the water proportion ranging from 30 to 40 cents per hundred weight. The new tariff is expected to open up the Pacific states to mills in the interior which heretofore have been handicapped by higher rates than charged their competitors contiguous to Atlantic terminals.

Contract for the 14-story addition to the Meier & Frank department store Portland, Oreg., went to L. H. Hoffman and W. S. Dinwiddie. The subcontract for 1800 tons of structurals was previously reported awarded to Poole & McGonigle.

Bars, Plates and Shapes

Mill prices of bars, plates and shapes are unchanged, reinforcing materials at 2.30c, merchant bars and shapes at 2.25c and plates 2.15c to 2.25c. Local steel mills have a fair run of concrete bar business in small tonnages. Although conditions are not active the situation is no more depressed than usual at this season.

King Bros., Portland, Oreg., obtained the contract for furnishing 10,000 feet of 20-inch 10-gage water pipe for Walla Walla, Wash., totaling 175 tons. This successful bid was $13,845. No other plate projects of importance are pending.

Structural specifications are lacking although a few jobs involving less than 50 tons each have been placed. Bids were opened at Portland Oreg., today for a government bridge in Rainier national park involving 114 tons of shapes and 47 tons of reinforcing. No large awards were announced this week. Unstated tonnages of steel are involved in remodeling of the Western state hospital at Steilacoom, Wash., bids July 24.

Finished Materials

The jobbing business is quiet, no one item showing marked activity. Turnover is mostly out of stock as mill buying is limited. Prices are unchanged although some readjustments are being contemplated.

Pipe Inquiries Filled

Recent awards have disposed of all immediate calls for cast iron pipe and nothing of importance is pending. Seattle has practically finished water department extensions planned for this year. The only award this week involved about 50 tons for Forty-eighth avenue S. W. and was taken by agents for French manufacturers.

Some Prices Are Advanced

San Francisco—*(By Air Mail)*—Some improvement in demand for reinforcing steel bars and structural steel shapes is noted, several large lots being placed this week. Among these were 3500 tons of reinforcing bars for the Fourth Street bridge, Los Angeles, secured by the Soule Steel Co. Prices are being fairly well maintained.

Demand for foundry pig iron and coke continues light and few sales or inquiries of importance have been noted. Prices continue unchanged.

Bars, Plates and Shapes

Out-of-stock prices on reinforcing bars in the San Francisco district have been advanced from 2.30c base, to 2.50c on carload lots and as high as 2.80c applies on less quantities. Awards this week totaled 5989 tons, the largest weekly total of the year. Gunn, Carle & Co. took 650 tons for a school in San Francisco and 103 tons for a store in Oakland. It is expected that an award on the Ford plant at Richmond will be made early next week. Over 2500 tons are involved. Demand for mild steel bars continues to be mostly small lots. Prices are firm at 2.25c, c.i.f. Prices of plates continue to range from 2.15c to 2.25c, c.i.f., the former quotation applying on larger lots.

Structural bookings were the second heaviest weekly total of the year and aggregated 4608 tons. The Consolidated Steel Corp. booked 1200 tons for the Title Guarantee building Los Angeles and 130 tons for a transit shed for the same city. No action has yet been taken on the Ford plant at Richmond, calling for 4400 tons. New inquiries include 270 tons for an apartment in San Francisco. Plain shapes are firm at 2.25c, c.i.f.

Other Finished Material

Only two awards of over 100 tons of cast iron pipe were reported this week. The American Cast Iron Pipe Co. took 141 tons for Eureka, Calif. An unnamed interest secured 384 tons for the improvement of Moreno boulevard, San Diego, Calif. Bids have been opened on 205 tons for Compton, Calif., and on 260 tons for San Francisco. The latter city will open bids July 21 for 771 tons. Demand for standard steel pipe and oil country goods continues light.

Concrete Awards Pending

(Concluded from Page 81)

erating Co., East Chicago, Ind.
600 tons, Elk street market, Buffalo, bids soon; subsidiary of New York Central railroad, builder.
415 tons, Washington street bridge, Los Angeles; general contract to General Engineering Corp.
400 tons, Kings Park hospital, Long Island, N. Y.; readvertised.
400 tons, Chicago Yacht Club.
227 tons, paving in San Diego county, California; bids Aug. 6.
200 tons, Shaker Heights, O., high school; bids in.
150 tons, garage for Missouri Highway commission, Jefferson City, Mo.
Unstated tonnage, bridges, Rockford, Ill.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 per ton

Base Discounts, Pittsburgh and Lorain, O., to jobber in carloads

Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2 points less.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal
½	58	44½	½	23	5
¼	62	50½	¾	28	11
1—3	64	52½	1 and 1¼	31	15
			1½ and 2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7 and 8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7 and 8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, Lap Welded Steel		f.o.b. Pittsburgh Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¼—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

SEAMLESS TUBING

Cold drawn; f.o.b. mill

Random lengths over 5 ft.....55%
Selected lengths, 1 to 18 ft.....53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. $37.00 to 38.00
Four-inch, Birmingham 41.00 to 42.00
Four-inch, Chicago ..... 49.20 to 50.20
Six to 24-inch, Chicago 45.20 to 46.20
Six-inch and over, N. Y. 38.50 to 40.50
Four-inch, New York .... 41.50 to 42.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Houston	3.00c
Los. Ang.	3.40c
New York††	3.10c
Philadelphia	2.70c
Pittsburgh	2.90c
Portland	3.15c
San Frans.	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.65c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
New York††	3.10c
Philadelphia	2.70c
St. Louis	3.15c
Tulsa	3.65c

REINFOR. BARS

Baltimore	2.50c-3.31c
Boston	2.665c
Buffalo	2.95c
Chattanooga	3.25c
Cincinnati	3.30c
Cleveland	2.25c-2.44c
Detroit	2.30c-3.00c
Houston	3.00c
Los Ang. cl	2.40c
Los Ang. lcl	2.70c
New York	2.65c-3.10c
Philadelphia	2.55c
Pittsburgh	2.75c
San Fran. cl	2.30c
San Fran. lcl.	2.60c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.65c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.40c
New York	3.10c
Philadelphia	2.60c
Pittsburgh	3.00c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Clev., 3/16-in	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York	3.30c
Philadelphia	2.60c
Pittsburgh	3.00c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c

NO. 10 BLUE

Baltimore	3.50c
Bost. 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.75c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
New York	3.40c
Portland	4.00c
Phila. *†	3.15c
Pitts. **	3.25c
San Fran.	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.545c
Tulsa	3.95c

NO. 24 BLACK

Balt. *†	3.75c
Boston	4.70c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Clev. ***	3.75c
Detroit	3.95c
Los Ang.	4.70c
New York	3.55c to 3.65c
Phila. *†	3.70c
Pitts. **	3.65c
Portland	5.00c
San Fran.	4.35c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.79c
Tulsa	4.45c

NO. 24 GAL. SHEETS

Balt. *†	4.50c
Boston	5.45c
Buffalo	4.40c to 4.60c
Chicago (lc. del.)	4.60c
Chicago (outside shipment)	4.35c to 4.60c
Cincinnati	4.90c
Cleveland***	4.35c
Detroit	4.60c
Houston	5.40c
Los Ang.	5.10c
New York	4.25c
Phila. *†	4.25c
Pitts.**	4.20c
Portland	5.50c
San Fran.	5.00c
Seattle	5.50c
St. Louis	4.85c
St. Paul	4.58c
Tulsa	5.35c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.65c
Chattanooga	3.45c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c
Det. 3/16-in. & lighter	3.30c
Houston	3.65c
Los Ang.	4.30c
New York	3.40c
Philadelphia	3.00c
Pittsburgh	3.25c
Portland	3.50c
San Fran.	3.75c
Seattle	4.15c
St. Paul	3.50c
Tulsa	3.85c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.65c
Det. No. 14 & lighter	3.80c
New York	3.75c
Philadelphia	3.25c
Pittsburgh	4.25c
Seattle	5.15c
St. Paul	4.00c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.85c
Chicago	3.35c
Cincinnati	3.80c
Cleveland	3.40c
Detroit	3.65c
Los Ang. (a)	4.50c
New York	3.50c
Philadelphia*	3.40c
Pittsburgh	3.35c
Portland (a)	4.50c
San. Fran.(a)	4.25c
Seattle (a)	4.75c
St. Paul (a)	3.85c
St. Louis	3.60c
Tulsa	4.75c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.
(a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100-in 500 lbs. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	6.15c
Cincinnati	6.10c
Clev. (b)	5.95c
Detroit	5.40c
New York	5.05c
Phila. (c)	4.95c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

††Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

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D-15

Metals

Zinc and Tin Turn Upward but Copper Sinks to Lowest Level Since 1902—Lead Is Steady

New York—Consumers of nonferrous metals were fairly active in covering their needs several months ahead, during the past week. Zinc and tin turned upward. Copper, however, dropped to the lowest level since 1902. Indications are that at the new low it may become firmer.

Brass and copper mill product prices have been cut ½ cent except for a few brass products that were reduced ⅜ cent. These reductions put products on the basis of copper at 11.00c, Connecticut. New business has been extremely light though in the past day or two utility companies began active buying of copper wire.

Copper—The market has been in a confused state in the past few days, with producers at times uncertain on exactly what they would do. After the market dropped about a week ago from 11.50c to 11.25c, it hesitated only momentarily before going to 11.00c, the price for which many consumers had waited. Some sellers withdrew quickly from the market at 11.00c after taking some business, while others were not free sellers for any position. The market remained in a delicate balance where a certain amount of buying might send the price higher.

Zinc—Good buying has been done, mostly about two months ahead. Smelters recently became reluctant to sell at their low prices around 4.10c, East St. Louis, and with this indication of firmness consumers began to show more desire to cover. This was the little urge that the market had awaited. Most business done the past few days has been at 4.30c, East St. Louis, though some prompt metal has been available five points less. Several days ago good business was done at 4.15c to 4.25c. The ore market went up $1 to $30 a ton and that stimulated firmness in slab metal.

Tin—This metal has fluctuated around 30.00c lately with consumers showing a little interest in futures. A few days ago the market dropped back near 29.00c, and then went up again on news that curtailment had actually become effective for two months this summer at many mines in the Orient.

Lead—Moderate business has been done lately for prompt and August shipments, and producers now are open for September business. This metal has been remarkably steady.

Aluminum—New business continues small, but prices are steady.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except otherwise specified. Copper and brass product prices based on 11.50c, del., Conn. for copper

Sheets	
Yellow brass (high)	17.87½
Copper, hot rolled	20.75
Lead, full sheets (cut ½c more)	9.00
Zinc sheet (100-lb. base)	9.50
Tubes and Pipes	
Seamless yellow brass (high)	22.75
Seamless copper	23.00
Rods	
Yellow brass (high, full turnings)	16.12½
Naval brass	19.00
Anodes	
Copper, untrimmed	18.75
Wire	
Yellow brass (high)	18.37½

Old Metals

Dealers' buying prices, cents lb.

Heavy Red Brass	
New York	7.25 to 7.50
Chicago	6.75 to 7.00
Cleveland	7.50 to 8.00
St. Louis	7.00 to 7.50
Heavy Yellow Brass	
Cleveland	4.00 to 4.50
Heavy Copper and Wire	
New York	8.50 to 8.75
Boston	8.50 to 9.00
Chicago	9.00 to 9.25
Cleveland	7.50 to 8.00
St. Louis	7.50 to 8.00
Red Brass Borings	
New York	6.75 to 7.25
Yellow Brass Tubing	
Cleveland	4.00 to 4.50
Light Copper	
New York	7.00 to 7.50
Chicago	7.00 to 7.25
Cleveland	6.50 to 7.00
St. Louis	7.00 to 7.50
Light Brass	
Boston	4.00 to 4.50
Chicago	3.50 to 4.00
Cleveland	3.00 to 3.50
St. Louis	4.00 to 4.50
Zinc	
New York	2.00 to 2.25
Cleveland	1.25 to 1.50
St. Louis	2.00
Aluminum	
Clippings, soft, Cleveland	11.00 to 12.00
Clippings, hard, Cleveland	8.50 to 9.00
Borings, Cleveland	5.00 to 5.50
Cast, Cleveland	7.00 to 7.50
Cast, Boston	7.50 to 8.00
Cast, St. Louis	7.50

Secondary Metals

Remelt aluminum No. 12	15.50
Brass ingot, 85-5-5-5	11.00

Coke By-Products Shaded As Demand Shrinks

New York—Considerable price shading is prevalent in coke by-products, volume of business being light.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots	Spot
Pure benzol	$0.21
90 per cent benzol	0.21
Toluol	0.30
Solvent naphtha	0.25
Commercial xylol	0.25
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.04½ to 0.05½
Naphthalene balls	0.05½ to 0.06½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.00 to $2.10

Pure benzol is 21c in tanks, but 20c is reported done. For motor fuel, benzol fluctuating with the gasoline market in various sections has sold at 17c to 18c. Toluol, solvent naphtha and xylol, officially unchanged are general easier on a slack demand.

Rosin makers are taking less phenol than last year and buying is spotty with prices shaded.

Most buying in naphthalene is now spot. Some fair repeat business is noted for naphthalene, following the close of the heavy consuming season. Prices are unchanged.

Sulphate of ammonia is easier and buying light.

Quicksilver $119-121

New York—Quicksilver is quoted at $119 to $121 a flask.

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin Spot New York	Straits Tin Futures New York	N. Y. Lead	St. L. Lead East	St. L. Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
July 16	11.25	11.57½	11.12½	30.10	30.55	5.25	5.15	4.20	22.90	6.80	35.00
July 17	11.25	11.57½	11.12½	29.87½	30.25	5.25	5.15	4.25	22.90	6.80	35.00
July 18	11.12½	11.25	11.00	29.62½	30.00	5.25	5.15	4.25	22.90	6.87½	35.00
July 19	11.05	11.07½	10.90	.....	.....	5.25	5.15	4.25	22.90	6.87½	35.00
July 21	11.00	11.07½	10.87½	30.00	30.50	5.25	5.15	4.27½	22.90	6.87½	35.00
July 22	11.00	11.07½	10.87½	29.62½	30.00	5.25	5.15	4.40	22.90	6.87½	35.00

Europe

Lack of Export Tonnage Is Detrimental to All Markets—Entente Loosens Control

London—Conditions in iron and steel export markets of Europe continue bad. There are spotty inquiries for manufactured steel in Great Britain, but resulting orders are for small tonnage and not in any way sufficient to relieve the anxieties of producers, and export business in British pig iron is practically absent. British users recently have placed a fair tonnage of orders for semifinished steel with continental works.

It is reported that, with the exception of semifinished steel, structural steel and wire rods, the European steel entente has withdrawn price limits, and consequently some anxiety is felt in Great Britain, owing to the cut prices which are expected to be made for merchant steel by continental exporters. Two weeks ago the continental pig iron entente reduced its export price for pig iron, and foundry pig iron, 2.5 to 3 per cent silicon, for the British market now is officially quoted at £3 3s ($15.20) f.o.b. Antwerp. At this price continental pig iron is distinctly competitive with Middlesbrough pig iron in the British market. It is noteworthy that the monthly figures of pig iron exports from the Tees are the smallest recorded since January, 1927.

Some Export Orders Received

The only bright spot in the British outlook is that some export orders continue to be received by engineering firms. Contracts for electrical machinery for Russia recently have been received by the General Electric Co. Ltd., London, and Peter Brotherhood Ltd., Peterborough. An order for 17 compressors has been received by Broom & Wade Ltd., High Wycombe, while Reavell & Co. Ltd., Ipswich, have obtained an order for two turbo-alternators, also for the Soviet republic. Babcock & Wilcox Ltd., London, have received a contract for four C.T.M.-type water-tube boilers, each capable of evaporating 50,000 pounds of water per hour, for the Calcutta Electric Supply Corp. A number of contracts for locomotives and railroad rolling stock have been obtained from Argentine, Rhodesia, Tanganyika and Brazil. An order for 13,500 tons of steel rails and fish-plates has been awarded to Dorman, Long & Co. Ltd., Middlesbrough, for the Union of South Africa Railways, while the United Steel Companies Ltd., Sheffield, have received an order for 7000 tons of steel rails for the South African Railways. From the same source an order for 4000 tons of rails has been passed to Baldwins Ltd., London, and another order to the Cargo Fleet Iron Co. Ltd., Middlesbrough.

Continental Reports Depressing

Reports from the continent are uniformly depressing so far as export markets are concerned. It is confirmed from Brussels that the market for merchant bars, plates, hoops and bands, which for several months had been indirectly controlled by the steel entente, now has become free, and the only restriction is the quota of export allocated to each member. In the meantime, great expectations are held with respect to the formation of an international comptoir for semifinished steel, to start operations at the beginning of August. This comptoir would concentrate all orders received from export markets and distribute them among its various members, who would be compelled to sell at the prices fixed by the comptoir. As a result, the price of merchant bars, which up to now has been fixed at £5 7s 6d ($26) f.o.b. Antwerp, now has come down to between £4 15s ($23) and £4 17s ($23.50), while beams are quoted at as low as £4 13s 6d ($22.55).

Generally speaking, conditions of export business on the continent are greatly confused, and the volume of inquiries received in France, Belgium, Luxemburg and Germany is absolutely inadequate to maintain order-books at a satisfactory level, although slightly more interest has been reported, particularly in Germany, from the markets in India, Brazil and China.

Price Reductions Fail To Benefit European Markets

London—(*By Radio*)—General conditions in the iron and steel markets here and on the Continent are unsatisfactory. Wage and price reductions in Germany have failed to improve the situation. A few orders have been placed in Belgium following price cuts. French steelmakers report export business is lifeless, with confusion in prices, while domestic trade is fair.

Many British steelworks are reaching the end of their order books, and further curtailment of operations is anticipated shortly. Dorman, Long & Co. have closed their Clarence works, Middlesbrough district, and Gjers, Mills & Co. have blown out two hematite furnaces in that district.

The export market is featured by an offer to French shipyards of 50,000 tons of plates at £7 4s ($34.50) c.i.f. French ports. The Vulcan Foundry Ltd., has obtained an order for 27 locomotives for delivery to India. The markets for galvanized sheets and tin plate are dull, though Japanese buyers are inquiring for tin plate.

French Steel Markets Hurt By Foreign Conditions

Paris—More and more the French iron and steel market is feeling the reaction of the unsatisfactory conditions obtaining in foreign markets, and dulness prevails throughout the metallurgical industry. The volume of orders for the domestic market being passed to mills certainly is considerable and the potential demand still remains highly satisfactory, owing to a great extent to the government policy which is encouraging the undertaking of considerable work, in which the iron and steel industry is bound to participate; but even this large volume of orders is not sufficient to absorb the production capacity of French works, and consequently there is keen competition between producers to capture these orders, with a resulting falling off of prices.

Already it can be seen that 1930 will not be as satisfactory as 1929, especially in view of the enforcement of the workers' insurance bill, which has taken effect as from July 1. Already employers see their wages bill increased by 5 per cent, representing their part of the contributions, and in many cases they are agreeing to pay the workmen's share, and this will considerably increase costs of production. In France workers have a strong hold on employers, because unlike most other countries, there is practically no unemployment in France, and the main difficulty which producers have to

HEART-BREAKING TASKS and a courageous metal!

JAGGED canyons through mountains of dirt. Cruel scars in a winding road. Seeping water—and ruts axle-deep.

A massive truck labors along this tortuous way, dragging a heart-breaking load. One tremendous surge of power carries it groaning over the final obstacle—and another battle with Nature is won!

Ordinary metals are not strong enough, tough enough to perform the heroic feats of transportation the quickened tempo of today demands. Modern metals, like thoroughbred horses, must be bred to a gallant strain—endowed with stamina, nurtured in brute strength and imbued with a magnificent courage that laughs at tasks at which the gods might shudder!

Agathon Alloy Steels are such metals! Fashioned by experts to meet specific requirements—rolled in the world's largest and most highly specialized alloy mills.

Republic Steel Corporation maintains a staff of noted metallurgists to help you with your steel problem. Consult with these men. They'll specify a steel to meet your needs—they'll create an entirely new metal for you if your requirements are out of the ordinary. No obligation is involved in these conferences. A line on your letterhead will arrange an interview.

AGATHON STEELS

Central Alloy Steel Division
REPUBLIC STEEL CORPORATION · YOUNGSTOWN, O.

AGATHON ALLOY STEELS

cope with is the shortage of labor. Among other disquieting factors, French industrial leaders look with anxiety upon the dulness of American business and the reduction in American consumption, and it is feared that this will result in serious efforts on the part of American producers to compete against Europe in export markets.

Activity of the pig iron market is declining, and it is not expected the tonnage allocated to foundries by the pig iron syndicate will be absorbed. Considerable Belgian and British spiegel iron is entering France. The volume of orders for merchant steel is substantial, but prices are continuously decreasing. Reinforced concrete bars now are quoted at 580 francs ($22.75), while in the north, 675 francs ($26.50) still is quoted.

German Steelmakers Find Business Disappointing

Berlin—It was stated in the annual report of the Rheinische Stahlwerke, Essen, that the dividend for the financial year ending March 31, 1930, would be increased from 6 to 7½ per cent, due mostly to the good effects of the reorganization of the collieries which has been effected during recent years. The profit was 20,150,000 marks ($4,800,000), against 16,480,000 marks ($3,930,000) in the previous year. Of the past year's profit, about 13,000,000 marks ($3,100,000) came from the colliery department. Production for the year under review was 5,480,000 tons of coal, against 5,270,000 tons in the preceding year, 1,760,000 tons of coke, compared with 1,670,000 tons, 60,000 tons of lignite, against 59,000 tons. The concern sold 95,140,000 cubic meters of coke oven gas, as compared with 48,390,000 cubic meters, and 8,930,000 kilowatt-hours of electric current, as against 8,060,000. At the end of the financial year the concern employed 17,746 workmen, compared with 17,585, and 1252 persons on the staff, against 1222.

The report of Maximilianshutte for the year ending Dec. 31, 1929, brings out a net profit of 1,910,180 marks ($455,000), compared with 1,951,151 marks ($460,000) in 1928.

The monthly report of the steelworks' union covering June states that in semifinished steel, structural steel and merchant bars practically no change was recorded in the volume of business. The domestic market did not show signs of being stimulated by the reduction of prices.

British Reduce Pig Iron Prices to Meet Continent

Birmingham, Eng.—The quarterly meeting of the iron trade was held at Birmingham July 10. The July meeting usually is quiet and conditions this year are against any expansion of trade. Consequently the attendance on the Exchange was smaller than for a long time, this in itself giving a fair indication of the plight to which some works are reduced. The surprise of the day was the reduction of 2s 6d ($.60) in the price of Midland pig irons as it was only a fortnight ago at their monthly meeting that furnacemen refused to consider any concession. It is significant, however, that the reduction follows swiftly upon the news that Continental pig iron had found its way to this district. It is generally agreed that little business has been done in this respect. It is understood that only one firm of merchants can undertake the sale of foreign iron in the Midlands, all the rest being obliged to work in conjunction with the Central Pig Iron Producers association, but the development was regarded seriously by furnacemen for it was realized that Continental prices are unstable and another 2s 6d ($.60) or so reduction in the f.o.b price would make pig difficult as far as inland selling was concerned.

Midland prices now stand at £3 12s 6d ($17.61) for Northampton No. 3 foundry and £3 16s ($18.46) for Derbyshire No. 3 delivered at stations in the Black Country.

The blast furnace and steel departments of the Dowlais works South Wales are closed from lack of orders. This is part of the Guest, Keen, Baldwins combine which intends to reopen as soon as a few orders can be obtained. The Ebbw Vale Works are still closed, with many other concerns in the South Wales district. It is understood the reason for this slackness is the importation of Continental steel, imports totaling about 25,000 tons per week. As a result of the stoppage of the Dowlais works, the Llanharry mines of the Glamorgan Hematite Iron Co. Ltd. have closed down for an indefinite period throwing out of work some 500 men.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 21	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$16.44	3 7 6*	$15.83	3 5 0	$15.83	3 5 0	$15.83	3 5 0
Basic-bessemer	15.95	3 5 6†	14.61	3 0 0	14.61	3 0 0	14.61	3 0 0
Hematite, Phosphorus 0.02-0.05	17.29	3 11 0	24.76	630*	.....	.....	17.78	3 13 0
SEMIFINISHED STEEL								
Billets	$29.22	6 0 0	$22.89	4 14 0	$22.89	4 14 0	$22.65	4 13 0
Wire rods	41.40	8 10 0	30.44	6 5 0	30.44	6 5 0	30.44	6 5 0
FINISHED STEEL								
Standard rails	$40.18	8 5 0	$31.66	6 10 0	$31.66	6 10 0	$31.66	6 10 0
Merchant bars	1.74c	8 0 0	1.05c	4 15 0	1.05c	4 15 0	1.05c	4 15 0
Structural shapes	1.68c	7 15 0	1.12c	5 1 6	1.12c	5 1 6	1.02c	4 13 0
Plates, ship, bridge and tank	1.79c	8 5 0	1.27c	5 15 0	1.27c	5 15 0	1.49c	6 15 0
Sheets, black, 24 gage	2.17c	10 0 0	2.09c	9 10 0	2.09c	9 10 0	2.20c	10 10 0
Sheets, galvanized, 24 gage, corrugated	2.47c	11 7 6	2.52c	11 8 9	2.52c	11 8 9	2.97c	13 10 0
Bands and strips	2.17c	10 0 0	1.18c	5 7 6	1.18c	5 7 6	1.29c	5 17 6
Plain wire, base	2.06c	9 10 0	1.46c	6 12 6	1.46c	6 12 6	1.43c	6 10 0
Galvanized wire, base	3.04c	14 0 0	1.76c	8 0 0	1.76c	8 0 0	1.67c	7 12 0
Wire nails, base	2.39c	11 0 0	1.46c	6 12 6	1.46c	6 12 6	1.49c	6 15 0
Tin plate, base box 108 pounds	$ 4.38	0 18 0	.....	.....	.....	.....	$ 9.01	1 17 0

*France

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50– 3.00	$16.44	3 7 6	$19.26	490(2)	$17.02	610	$19.81	83
Basic pig iron	15.95	3 5 6	20.63	525(1)	15.07	540	21.12	88.50
Furnace coke	3.17	0 13 0	6.60	168	6.00	215	5.13	21.50
Billets	29.22	6 0 0	24.36	620	22.60	810	28.05	117.50
Standard rails	1.79c	8 5 0	1.46c	810	1.62c	1,245	1.47c	136
Merchant bars	1.74c	8 0 0	1.18c	655	1.25c	965	1.48c	137
Shapes	1.84c	8 10 0	1.26c	700	1.22c	940	1.45c	134
Plates, ship, bridge and tank	1.95c	9 0 0†	1.46c	810	1.52c	1,170	1.65c	153
Sheets, black, 24-gage	2.28c	10 10 0	2.72c	1,510	2.54c	1,950	1.36c	126
Sheets, galvanized 24 gage, corrugated	2.58c	11 17 6	3.52c	1,955	2.80c	2,150	3 67c	340
Plain wire	2.06c	9 10 0	2.03c	1,125	2.15c	1,650	2.34c	217
Bands and Strips	2.17c	10 0 0	1.35c	750	1.50c	1,150	1.72c	159

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.17) f. o. b. Ferromanganese £19 6s 0d ($93.99) delivered Atlantic seaboard, duty-paid. German ferromanganese £12 5s 0d ($59.66) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

In 1930 general magazine advertising...for passenger cars

REO

features *Nickel Cast Iron* cylinder blocks

"GOOD *for* 100,000 *miles*"

THE SATURDAY EVENING POST

Reo is happy to note this trend on the part of the public. Reo has never neglected style, but Reo has never, in the 26 years of its history, built to a price. In the very beginning, Reo set for itself one rigid standard—from which Reo has never wavered. That standard is to make Reo good for 100,000 miles—to make a car you will enjoy driving and be proud to drive for a full 100,000 miles.

RICHARD H. SCOTT, PRESIDENT

Why RE... GOOD for 100,000 ...

Each Reo part is built to withstand a strain ... greater than you will ever put it to ... will ever undergo in actual service.

... operating ratio to make that reserve ...

Reo's sales are seasonal ... Reo springs ... that can withstand a shock equivalent to ... Reo off a two-foot drop at 50 miles an ...

Reo uses only "live" metal in its ... steps—no scrap metal is tolerated.

Reo's bearing crankshaft, flywheel, ... drums—even Reo's fan blades—are ...

REO MOTOR CAR COMPANY
Lansing, Michigan

REO FLYING CLOUD
GOOD
for 100,000 miles

A chrome-nickel cylinder block with seven times the endurance of the ordinary iron block, immensely reducing valve seat wear and the need of valve grinding and valve tappet adjustment.

(From The Saturday Evening Post—January 11, 1930)

This is a reproduction of one page of the double-page advertisement in The Saturday Evening Post which featured the Chrome-Nickel Iron cylinder blocks in Reo Flying Cloud models.

AGAIN, the Reo Motor Car Company features Nickel Iron... Reo is the *first* manufacturer of passenger automobiles to feature a Chrome-Nickel Iron engine block in national magazine advertising!

Previously Reo "Speedwagon" advertising, in The Saturday Evening Post, described Nickel-chrome alloy iron as "the longest wearing cylinder material known today". Now...in 1930 general magazine advertising for Flying Cloud models, Reo states: "A chrome-nickel cylinder block with seven times the endurance of the ordinary iron block".

More and more, leading manufacturers of quality products, and the general public as well, appreciate the far-reaching significance of standardizing on such improved materials as Chrome-Nickel Cast Iron. Uniformly high hardness... freedom from hard spots...finer grain...greater toughness...unusual wear-resistance...these are the characteristics of Chrome-Nickel Cast Iron that make this modern material particularly suited to automotive cylinder castings.

Consequently, longer wearing Nickel-Chrome Iron cylinder blocks are contributing toward the production of a Reo Flying Cloud that is "good for 100,000 miles."

Nickel
FOR CAST IRON

INCO NICKEL

Our foundry specialists will gladly discuss your casting problems with you

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Machinery

Buying Improves in Middle West; Purchasers in East Continue Timorous

New York—Machine tool orders continue light. Inquiry is also off. A few scattered orders have been taken for one or two machines, but most manufacturing industries are showing little interest in new equipment. Most builders have reduced plant forces to skeleton organizations. A few have resumed operations in a small way. July with most dealers will be under June, which was a dull month. Figures are in on a limited number of tools, and have been for weeks, but purchasing departments are finding it difficult to get appropriations for new equipment, although in some instances frankly admitting that equipment will be needed with the resumption of active production schedules.

Prices are unchanged, there being little or no tendency to reduce prices in an effort to stimulate business. Builders and dealers agree that price concessions would in no way give impetus to the demand at this time. Buying of used machinery continues listless.

Dealers are looking hopefully for a resumption of activity in the fall, but many frankly admit that improvement in general industrial conditions will be slow to be reflected in a pronounced demand for machine tools. Export business has slumped. This is especially true with Russia, which is now reported to be placing more tools in England and Germany.

Worcester, Mass.—Machinery buying is at a standstill, and prospects for any immediate advance seem remote unless, as is unlikely, production of the new 8-cylinder automobile models is stepped up to the point of requiring more and newer machinery. In all lines there is a dearth of active inquiry and no lists of importance are pending.

Pittsburgh—Machine tools are in a steady market with inquiry remaining at a fair rate. Orders have been slightly more numerous recently but continue to involve only a few tools at a time. Sellers are fairly optimistic over the outlook and in view of the amount of pending business look for better buying during the remainder of the quarter. Railroads continue absent from the market but miscellaneous purchases by steel companies are slightly more numerous.

Chicago—Moderate interest in machine tool buying is being shown by purchasers who now are in a financial position to have equipment in readiness for heavier operations later. July sales generally will be below June, although one or two houses report scattered sales in the last week sufficient to make a showing apparently comparable to June. Most dealers report current business less than 60 per cent of a year ago. Majestic Household Utilities Corp., which in the last few months has placed heavy machine tool orders in this district, has just closed on a number of small cranes, hoists and monorail equipment. Chicago board of education has deferred action still further on the Austin high school equipment, but has inquiries out for 25 shop tools, including some lathes and also wood-working tools for the Von Steuben Junior high school. Chicago, Burlington & Quincy railroad is inquiring for a 36-inch shaper, 72-inch radial drill, a single-spindle nut and bolt pointer, a pipe machine and several other tools. Fairly good inquiries are before the trade, including a half-dozen boring mills and several planers. Less interest is being shown in used tools than in many weeks.

The city of Milwaukee has accepted the bid of the Harnischfeger Corp., Milwaukee, for furnishing two electric traveling cranes for the addition to be made to the municipal garbage incinerating plant at a price of $10,976.

Cleveland—The slight tendency toward an upswing in machinery buying continues. Due to the placing of several small orders and well authenticated rumors of larger orders to come a distinct recovery has taken place in the morale of some dealers and builders. The representative here of a machine tool builder which has just brought out a new and faster model of a production machine designed for making automotive parts, reports that the installation of one of these machines in a local plant has led to an immediate order for six like machines from a company in a similar line of business, as well as a number of requests for quotations from other parts makers.

The condition appears to be one of tension, interests in the same or allied lines of manufacturing watching each other closely to see which makes the first move toward resumption of buying and just what form the resumption will take. Vacations continue and will continue to delay operations by temporarily removing from the scenes executives whose approval is necessary to the final closing of some pending business.

New A.F.A. Officers and Directors Assume Duties

New officers and directors of the American Foundrymen's association, Chicago, took office for the ensuing year at the meeting of the board in Detroit, July 15 and 16. N. K. B. Patch, Lumen Bearing Co., Buffalo, is the new president and E. H. Ballard, General Electric Co., Lynn, Mass., is vice president. Directors who took up service at this time include the retiring president, Fred Erb, Erb-Joyce Foundry Co., Detroit; H. R. Culling, Carondelet Foundry Co., St. Louis; C. S. Anderson, Belle City Malleable Iron Co., Racine, Wis.; R. M. Maull, Tabor Mfg. Co., Philadelphia; and D. M. Scott, Gould Coupler Co., Depew, N. Y.

L. W. Olson, Ohio Brass Co., Mansfield, O., who has served the association for the past ten years as director, vice president, president and again as director, offered his resignation. The vacancy was filled by the election of Fred Wolf of the same company, who has been active in the committee work and other affairs for many years.

The place and date of the 1931 convention was referred to the newly-elected executive committee, which consists of the president and vice president, the executive secretary, C. E. Hoyt, and directors Fred Erb, S. W. Utley, Harold S. Falk and B. H. Johnson.

Woven Spring Steel Screen Gives Long Service

The Ludlow-Saylor Wire Co., St. Louis, has placed on the market a line of heavy woven wire screens made from a special hard, resilient steel alloy. According to the manufacturer a pair of cylindrical screens made of this spring steel wire has been handling crushed limestone road ballast since 1926 and still appears to be in good condition. These spring steel screens now can be furnished in all grades required for heavy sizing duty on such material as iron ore, copper ore, zinc ore, coke, limestone, etc.

Minnesota Steel Co., Duluth, recently purchased an American electric rotary clay gun including all motors and control from the William M. Bailey Co., Pittsburgh, for installation at its No. 2 stack at Duluth.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

ANSONIA, CONN. — Farrell-Birmingham Co., Main street, manufacturer of machinery, plans construction of a 1-story addition and improvements in its present plant. Cost, with equipment, is estimated at approximately $45,000.

HARTFORD, CONN.—Hart Mfg. Co., Bartholomew avenue, manufacturer of electrical supplies, will construct a new unit of two stories, 25 x 35 feet. Cost is estimated at $25,000, with equipment. General contract has been let to Industrial Construction Co., 721 Main street.

NEW HAVEN, CONN.—National Folding Box Co., James street, has awarded contract to E. & F. Construction Co., 94 Wells street, Bridgeport, Conn., for the construction of a plant addition. Expenditure will amount to about $40,000.

WATERBURY, CONN.—Lux Clock Co., Sperry street, has a permit for a 4-story plant recently noted as planned. Unit is to be 33 x 81 feet, and will cost about $50,000. Oscar LaCroix has been awarded contract. (Noted May 1.)

CAMBRIDGE, MASS.—Radcliffe college, 10 Garden street, A. L. Comstock president, has plans for a building to house chemistry and physics departments. Architect has not been selected. Estimated cost, $400,000.

CANTON, MASS.—Tobe-Deutschmann Co., manufacturer of technical apparatus, plans to rebuild its plant, which was recently damaged by fire.

SOUTH EVERETT, MASS.—Merrimac Chemical Co., subsidiary of Monsanto Chemical Works, St. Louis, in carrying out rebuilding schedule recently noted, has awarded contract to J. F. Griffin Co., 250 Stuart street, Boston, for construction of a 1-story machine shop, at a cost of about $40,000. (Noted June 26.)

WESTFIELD, MASS.—Martin Trailer Co., manufacturer of trailers and wheels, plans a 1-story addition at a cost of $40,000. Unit is to be 80 x 100 feet.

WINCHENDON, MASS.—Mason & Parker Mfg. Co. has completed plans for erection of a 3-story plant, 78 x 200 feet, portion of which is to be used as a warehouse. Company manufacturers toys and novelties.

EAST JAFFREY, N. H.—United Shoe Machinery Co., 205 Lincoln street, Boston, C. A. Johnson superintendent of the local plant, will build a 2-story addition for the manufacture of tacks. Contract has been awarded to A. Knight, Stratton road, Jaffrey, N. H.

MELVILLE, R. I.—Navy department, bureau of yards and docks, proposes construction of a power plant at the naval fuel depot.

New York

BUFFALO—Atlas Steel Castings Co. Inc., 1963 Elmwood avenue, has awarded contract for the construction of a 1-story addition to its plant. Unit will be 24 x 60 feet, to be used for cleaning department. Company makes castings for the automotive industry.

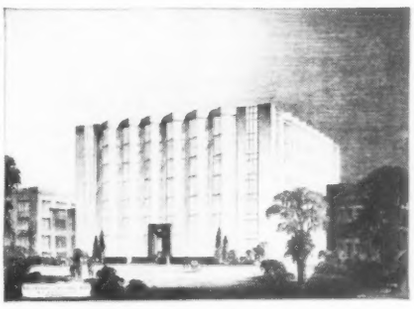
CORTLAND—Brewer-Titchenor Corp., manufacturer of auto accessories, will expand to enter the manufacture of hardware for the electrical trade. Four units will be erected at a cost of about $100,000, for pickling, galvanizing and storage. Two 10-ton cranes will be needed. Contract has been awarded to Austin Co., 16112 Euclid avenue, Cleveland.

NEW YORK—New York Central railroad, 466 Lexington avenue, will build a 4-story substation, 60 x 92 feet, at 316 West Sixty-sixth street, at a cost of about $110,000.

NIAGARA FALLS—S. M. Ryder & Son, College and Highland avenues, manufacturer of canning machinery and lifting trucks, will take bids soon for the construction of a new plant unit, 80 x 230 feet.

UTICA—McCoy Iron Works Inc., 611 Mortimer street, whose incorporation recently was noted, was organized to take over the business and plant of M. A. McCoy, who is president of the new organization, according to advices. Company plans to add some new machinery, including cranes, riveters, electric rivet heaters, etc. Company engages in general blacksmithing business and manufactures builders' iron work. (Noted July 17.)

Builds Unique Laboratory



Seven-story engineering and research building is being constructed for A. O. Smith Corp., Milwaukee, large pipe fabricator. The unit will accomodate 1000 scientists and research engineers.

Pennsylvania

BEAVER FALLS—Plant of Union Drawn Steel Co., Seventh avenue and Third street, recently was damaged by fire.

BUTLER—American Austin Car Co. Inc., with offices and plant here, is reported to be considering tentative plans for erection of a plant for building automobile bodies on its property here, adjoining the present plant, although official announcement has not been made. Proposed unit would cost $750,000 and employ 500 men.

HAZELTON—Heat Control Corp. has been incorporated by William Lloyd and George W. Wilmot to manufacture and deal in temperature control devices.

PITTSBURGH—Reliance Steel Castings Co., Twenty-eighth and Smallman streets, recently noted as having rejected former plans for a plant addition, has awarded contract under new plans to McClintic-Marshall Co., Oliver building, for a 2-story, 50 x 60-foot addition. (Noted May 15.)

PITTSBURGH—Gulf Refining Co., H. Henderson manager of construction, Frick annex, will build units of a refining plant on Neville island for connection with a pipe line to Tulsa, Okla. Machine shop, 45 x 128 feet, and a boiler house unit are included in the project. E. B. Lee, care of chamber of commerce, will prepare plans. Bids will be taken soon.

POTTSTOWN—Pottstown-Sotter Tank Works Inc. has been incorporated with $100,000 capital by Joseph C. Hoffman, Hazelton, Pa., to manufacture and deal in tanks, pipes, castings and oil and chemical equipment.

YOUNGSVILLE—Hangar unit at Broken Straw airport recently was damaged by fire. Loss is estimated at $14,000.

New Jersey

HIGH BRIDGE—Taylor-Wharton Iron & Steel Co. has plans for expansion of foundry facilities. Units 20 x 80 feet and 50 x 130 feet will be constructed. Contract has been let to Austin Co., 16112 Euclid avenue, Cleveland. Sandhandling and conditioning equipment will be added. Cost of the project is approximately $300,000.

NEWARK—Welded Steel Products

Inc. has been incorporated with 200 common shares by George A. Henderson, 17 Academy street.

NEWARK—General Brass Foundry Co. Inc. has been incorporated with $125,000 capital by Manuel Hoenig, 9 Clinton street.

NEWARK—Clifton Machine Tool Co. has been incorporated with $10,000 and 600 common shares by August A. Lindahl, 31 Clinton street, to deal in tools.

ORANGE—Pronto Gas Products Inc. has been incorporated with $100,000 capital by Ralph E. Giordano, 282 Main street, to deal in heaters, etc.

PATERSON — Scott & Depalama Engineering Corp. has been incorporated with 3000 common shares by Surosky & Surosky, attorneys, 45 Church street, to manufacture oil machines.

PAULSBORO—Vacuum Oil Co., 61 Broadway, New York, proposes to construct a laboratory unit here of one and two stories, 40 x 70 feet. Plans are private. Cost is approximately $40,000.

Ohio

ATHENS—Athens Flying Service Inc., care S. J. Sherrard, is preparing plans for construction of a hangar unit at an airport near here.

CINCINNATI—Reliance Foundry Co., 506 East Front street, has a building permit for repairs and alterations to its shop. Estimated cost, $450.

CINCINNATI—Boye & Emmes Machine Tool Co., 2245 Spring Grove avenue, will move from present location. Company is considering erection of a plant and office building on a site not yet selected.

COLUMBUS—Buckeye Saw Mfg. Co., 285 North Water street, has a permit for the construction of a 2-story plant addition. Contract has been awarded to F. & Y. Construction Co., 731 East Broad street.

DAYTON—Midwest Machine Co., 26 Canal street, has a building permit for construction of a workshop addition at a cost of $350.

LIMA—General Range Corp. has been incorporated with $50,000 and 2000 no par shares by Elmer E. Welty, Frances M. Shepard and Joseph H. Flick, as a manufacturer. Company will continue the business of General Range Mfg. Co. of Cincinnati, manufacturer of electric cook stoves. Plant of the Cincinnati organization is being dismantled. General Range Corp. is expected to begin operations with about 30 employes.

NEWARK—City council has voted $25,000 for an airport site west of the city. Work will begin immediately on construction for use by the federal government in air mail service.

PORTSMOUTH—Ohio Power Co., 1 South Fourth Street, Columbus, O., will construct a power substation immediately in Millbrook park. Unit is to be 40 x 60 feet and will cost approximately $50,000. Plans are private.

RAVENNA—A. C. Williams Co., manufacturer of hardware specialties and toys, will build an addition to its foundry, increasing plant capacity about 35 per cent. Contract has been awarded to P. L. Frank Construction Co. Clyde Heisler is manager of the Williams plant.

TOLEDO—Schultz Die Casting Co., whose acquisition of a plant at 1810 Clinton street recently was noted, advises through J. A. Schultz, Jr., president, that the company will install complete equipment for a die shop and tool room, and special machinery for the production of die castings. (Noted July 10)

URBANA—Art Metal & Shade Co., 3964 Grand river road, Detroit, through Warren G. Grimes, has leased a plant here formerly occupied by Armbruster Brothers, cigar manufacturers. Art Metal company will move operations here about Aug. 1. Company manufacturers metal frames.

Indiana

CONNERSVILLE—Plant of Lincoln Mfg. Co. recently was damaged by fire. Company manufactures transmissions and brakes. Aggregate loss is estimated at $200,000.

EAST CHICAGO—Board of public works is reported to be considering adding equipment and making improvements in the municipal water plant. Z. R. Campbell, East Chicago, Ind., is engineer.

EVANSVILLE—Atlas Box Co., 932 East Pennsylvania street, has awarded contract to Jacob Schmidt, 1670 Bayard Park drive, for the construction of a 2-story addition, 52 x 65 feet, which will cost $40,000 with equipment. Alfred E. Neucks, Old National Bank building, is architect.

GREENFIELD—Chamber of Commerce is negotiating with manufacturer of steel doors to establish plant here. Plant eventually would employ about 1000 workmen.

GREENSBURG—Plant of Standard Casket Hardware Co. recently was damaged by fire and an explosion. Loss is estimated at approximately $60,000.

INDIANAPOLIS—Cleveland, Cincinnati, Chicago & St. Louis railroad, 466 Lexington avenue, New York, has awarded contract to Ellington Miller Co., 25 East Jackson boulevard, Chicago, for the construction of a repair shop, 184 x 444 feet, at Beech Grove, near here. Shop will cost $160,000.

LOGANSPORT — Redinger-Ball-Morris Mfg. Co. will construct a plant addition on a site now being surveyed. Expenditure will amount to about $25,000. Company manufactures electric relays and auto accessories.

NORTH VERNON — Phototone Equipment Corp. of America has been incorporated with 100 no par shares by Howard Frankel and J. M. McHugh to manufacture and deal in parts for theater sound equipment.

TERRE HAUTE—Aviation commission, city, considering construction of a hangar unit, 125 x 150 feet, at airport south of here. Cost is estimated at $150,000. R. Prox, 1608 South Fourth street, is engineer.

Michigan

BENTON HARBOR—Benton Harbor Castings Co. recently suffered slight fire damage to its plant. Loss is estimated at $600. Company is a division of Benton Harbor Malleable Industries Inc.

DETROIT—Mastertone Corp. of America has been incorporated with $25,000 capital by Ernest W. Glass, 7905 West Vernor street, to manufacture and deal in radios and radio merchandise.

DETROIT—Hughes-Cash Co. has been incorporated with $10,000 capital by P. E. Hughes, 5650 Grand river road, to manufacture and deal in sound and radio equipment, radios, electrical supplies and equipment.

DETROIT—Detroit Electric Fan Co. has been incorporated with $10,000 capital by Harold M. Hopkins, 3260 Pingree street, to manufacture and deal in electric ventilating machinery and equipment.

DETROIT—Michigan Gear & Engineering Co., 19 West Woodbridge street, has plans for construction of a machine shop, 62 x 128 feet, at a cost of about $25,000. Contract has been awarded to Austin Co., builders, 16112 Euclid avenue, Cleveland.

DETROIT—Stinson Aircraft Corp., Toll street, Wayne, Mich., Edward A. Stinson president, is considering construction of a plant in Canada for the manufacture of airplanes. Preliminary investigations have been made. Developments await completion of tests on the new Stinson junior planes.

DETROIT—American Heating & Sheet Metal Works Inc., 3401 East Davison street, has been incorporated with $1,500 by Emeric Boutin to engage in a general heating and sheet metal business.

DETROIT—Universal Stovedome Co., 2842 West Grand boulevard, has been incorporated with $5000 capital by J. H. Engel, attorney, 2232 Buhl building, to manufacture and deal in a patented article known as Stovedome.

DETROIT—General Electric Co., Schenectady, N. Y., through its Detroit branch, 700 Antoinette street, Detroit, has acquired a site adjoining its present headquarters, and will

erect two units at a cost of about $400,000. Approximately 155,000 square feet of floor space will be added in a 5-story plant addition costing $300,000 or more. A 1-story shop unit to be erected will cost about $100,000. J. H. Livsey is Detroit manager of the company.

IRON MOUNTAIN—Iron Mountain Cylinder Grinding & Machine Shop is erecting a 1-story plant addition at a cost of about $20,000. Additional equipment will be needed.

PORT AUSTIN—Mayes Brothers Tool & Mfg. Co. is expanding its plant here. Company expects to have plant addition in operation about the middle of August.

YPSILANTI—Franklin Glider Corp., 800 Railroad street, has been incorporated with $12,000 capital by Roswell E. Franklin, 1328 Pontiac street, Ann Arbor, Mich., to design and manufacture aircraft and automotive trailers.

Illinois

CHICAGO—Chicago Surface Lines, 231 South LaSalle street, H. Schmidt architect, will construct a 2-story unit at 100 North Western avenue, for car barns and repair shop.

CHICAGO — Ideal Machine Co., 6036 Wentworth avenue, has been incorporated with $10,000 capital by Gottlieb & Schwartz, 310 South Michigan boulevard, to engage in a general manufacturing business.

CHICAGO — Lakeside Machinery Co. Inc., 571 West Lake street, has been incorporated with $50,000 capital by Henry L. Balaban, 162 North State street, to deal in new and used machinery.

CHICAGO—Griffin Appliance Corp., 314 South LaSalle street, has been incorporated with 2400 no par shares by Lorne A. Griffin, 134 South LaSalle street, to deal in electrical and mechanical devices.

CHICAGO—Commonwealth Edison Co., 72 West Adams street, has a building permit for erection of a 1-story substation at 1544 Sedgwick street, to cost about $10,000.

CHICAGO—Grigsby-Grunow Co., 5801 Dickens avenue, manufacturer of radios, has a building permit for construction of a 1-story plant addition, 23 x 208 feet, at 5764 Dickens avenue. Estimated cost, $10,000. Howard Farnum, 510 North Dearborn street, is architect.

CHICAGO—Harry A. Miller Products Co., 1508, 33 North LaSalle street, has been incorporated with $10,000 capital by Cummings & Wyman, 1 North LaSalle street, to deal in machinery.

CHICAGO—Electric Ozone Utilities Co., 20 North Wacker drive, has been incorporated with $375,000 and 100,000 no par shares by Ralph D. Stevenson, 20 North Wacker drive, to deal in machinery and devices.

CHICAGO—Communication Equipment & Engineering Co., 2626 West Washington boulevard, has been incorporated with 500 no par shares by Robert H. Farrell, attorney, 130 North Wells street, to deal in machinery.

CHICAGO—Asher Ironer Corp., 512 West Washington boulevard, has been incorporated with $200,000 capital by Harry D. Irwin, attorney, 77 West Washington boulevard, to deal in laundry machinery.

CHICAGO—Universal Casement Hinge Co., 2758 West Madison street, has been incorporated with $10,000 capital by John W. Healy, 2758 West Madison street, to deal in building hardware.

CHICAGO—Commonwealth Edison Co., 72 West Adams street, has a building permit for construction of a 2-story service building at 3527 California avenue north. Holabird & Root, 333 North Michigan avenue, are architects.

CHICAGO—Illinois Steel Co., 208 South LaSalle street, has building permits for the following units: at 7935 Brandon avenue, 1-story shipping building, 692 x 699 feet, at a cost of about $1,210,000; at 8115 Brandon avenue, 1-story blooming mill building, 73 x 151 feet, at a cost of $70,000; at 8121 Brandon avenue, 1-story blooming mill building, 125 x 207 feet, at a cost of $155,000; at 8109 Brandon avenue, 1-story furnace building, 100 x 145 feet, at a cost of $55,000. L. C. B. Holmboe, South Chicago, Ill., is architect.

SPARTA—Stuart Aero Products Inc., Thirteenth and Rutger streets, recently noted as a new firm here, advises through A. E. Stuart, president, that the company's plant is located in the McKelvey building. A flying field reported to be one of the largest in the world is to be established here and the Stuart company will erect a large plant on the field upon its completion. (Noted June 5)

Southern States

BIRMINGHAM, ALA.—Birmingham Automobile & Machine Co., 2330 Second avenue, is considering installation of additional machinery for the manufacture of tool handles.

WILMINGTON, DEL.—Automatic Safety Gate Co. has been incorporated with 2500 common shares by Corporation Trust Co. of America, duPont building.

WILMINGTON, DEL.—American Hume Steel Pipe Corp. Ltd. has been incorporated with $2,000,000 capital by Corporation Trust Co. of America, duPont building.

WASHINGTON—Ballauf Mfg. Co., 621 H street northwest, manufacturer of machinery and models, plans construction of a 3-story plant addition, 42 x 91 feet, at a cost of approximately $50,000. E. W. Syme, 906 Fifteenth street, is architect.

ATLANTA, GA.—Board of trustees, Georgia School of Technology, plans to build an aviation building of three stories, 75 x 95 feet, at a cost of $90,000, including equipment. Prof. Harold Bush Brown, department of architecture, care of the school, is architect. General contract has been awarded to Brazell & Miller, Norris building.

CORDELE, GA.—Crisp County power commission has approved plans for a new power plant. Project will cost $100,000 with equipment.

GERMANTOWN, KY.—Plant of Kennedy & Galbreath Tobacco Planter Co., manufacturer of tobacco planting machinery, recently was virtually destroyed by fire. Five other buildings destroyed at the same time made aggregate loss amount to $75,000.

LOUISVILLE, KY.—National Consumers Oil Co. Inc., Terre Haute, Ind., proposes to erect a storage and distribution plant here, to include installation of power equipment and pumping machinery. Cost of the entire project, $200,000.

LAKE CHARLES, LA.—Lake Charles Compress & Warehouse Co., S. E. Walker manager, plans enlargement of plant facilities, including machine shop.

MORGAN CITY, LA.—City has voted bonds for power and light system and improvements to water system. Swanson-McGraw Inc., Balter building, New Orleans, is preparing plans. Project will cost about $175,000. Bids will be asked about Sept. 1.

SHREVEPORT, LA.—Barksdale Field, proposed headquarters of the third attack wing of the United States Army Air Corps, located near here, will be under construction by next January. Entire project will cost about $8,000,000. Expenditure of $6,500,000 will include houses, hospital, theater, etc., and utility shops. Additional expenditures of $1,100,000 will include hangar units, headquarters buildings, machine shop, assembly plant, photographic, parachute and armament building, and an air corps warehouse.

WINFIELD, LA.—Louisiana Development Corp. plans to build a plant here for the manufacture of salt and chlorine products, to include a machine shop.

COLUMBIA, MISS.—Mississippi Industrial Training School, whose power plant recently was noted as having been damaged by fire, will receive bids until July 30 for furnishing and installing generating equipment and engines. Vinson B. Smith Jr., 601 National Bank of Gulfport building, is architect. (Noted May 1.)

CHATTANOOGA, TENN.—Superior Foundry & Mfg. Co. has been incorporated with $10,000 capital by W. B. Looney, Andrew Jackson apartments.

MEMPHIS, TENN.—Plant of the Southern Boiler & Tank Works Inc., 1281 Thomas street, recently was virtually destroyed by fire. Loss is esti-

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mated at approximately $75,000. Plant was insured.

CHARLESTON, W. VA.—West Virginia Machine Co. Inc. has been incorporated with $25,000 capital by S. D. Hall, 404 Eleventh avenue, Huntington, W. Va.

WILLIAMSON, W. VA.—Williamson Machine Works, whose plant at 117 East Fourth avenue recently was damaged by explosion and fire will resume operations in the Third avenue plant formerly occupied by Mingo Home Laundry. Machinery valued at $5000 was destroyed by fire and is being replaced in the new plant.

Arkansas

HARRISON, ARK.—Arkansas Light & Power Co., Pine Bluff, Ark., has plans for the installation of a light and power system here. Estimated cost, $30,000.

Oklahoma

EL RENO—City, J. H. Bender, city manager, is planning construction of a power and light plant which will cost approximately $450,000.

SAYRE—Oklahoma Carbon Industries, C. K. Springfield general manager, plans construction of a carbon black plant to include a machine shop for repair work. C. W. Seegar is in charge of construction.

Texas

CORPUS CHRISTI—Houston Oil Co., Petroleum building, Houston, Tex., will construct a machine shop as a part of its expansion at its refinery here. F. Y. Hutchinson is engineer in charge.

HOUSTON—Hoffman Mfg. & Development Co., E. J. Hoffman president, will construct a plant here for the manufacture of headlights, pumps, and spring wheels for automobiles.

MINEOLA—Early construction of hangar units and repair shop is planned in connection with the airport here. E. H. Reeves is secretary of the city airport board.

Wisconsin

MADISON—Garage and repair shop unit will be built by the city. Estimated cost, $20,000. E. E. Parker is city engineer.

MILWAUKEE—American Iron & Steel Co. has been incorporated with 5000 no par shares by J. O. Roehl, 501 First Wisconsin National Bank building.

MILWAUKEE—County board of supervisors has let contracts for construction of Hangar No. 2, 100 x 100 feet, at County Airport, Layton avenue. Unit is designed especially for the use of Hamilton Metalplane Co., 530 Park street, division of the Boeing Airplane Co., 330 West Front street, Seattle.

RACINE—Iroquois Foundry Co. has been incorporated with $15,000 capital by August C. Vierthaler, 317 Leudtke avenue, to engage in the general foundry business.

STURGEON BAY—John M. Laurie, highway commissioner, Door county, advises he is in the market for a used 60-horsepower boiler.

STURGEON BAY—County highway commissioner, Door county, has closed bids for the construction of a machine shop and warehouse for county highway equipment. Cost will total about $30,000.

South Dakota

CHAMBERLAIN—Central West Public Service Co. will begin at once to construct a new power plant here on the site of the present one.

PIERRE—City plans to improve and extend municipal power plant at a cost of about $125,000.

New Trade Publications

ELECTRIC FURNACES—Hevi Duty Electric Co., Milwaukee, in a new bulletin describes and illustrates its new plant and offices at 4100 Highland boulevard, Milwaukee, where it feels itself better fitted to serve industry.

CRANES—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., devotes its current bulletin to its hand and electric cranes in connection with its overhead tramrail for materials handling, with profuse illustrations of cranes in operation.

ELECTRIC TOOLS—Millers Falls Co., Millers Falls, Mass., has issued a catalog of its portable electric tools, illustrated and containing specifications. The tools include drills, hole saws, hand saws, screw drivers, hammers, grinders, valve refacers, grinders and sanders.

ELECTRIC MOTORS—Fuerst-Friedman Co., Cleveland, has issued a bulletin describing electric motors manufactured by the Diehl Mfg. Co., the electrical division of the Singer Mfg. Co., for which it has recently taken over sales. Illustrations show construction and general appearance of the motors.

ELECTRODES—A bulletin by the Fusion Welding Corp., subsidiary of the Chicago Steel & Wire Co., Chicago, describes a new technique for manual welding of mild steel plates without beveling, using the company's electrodes. Attention is called to advantages of this method and savings it makes possible.

ACID STEEL PRODUCTS—Heppenstall Co., Pittsburgh, has issued a booklet telling of its service to industry, automotive, electrical, refining and other branches. The booklet describes its metallurgical service and products, including acid open-hearth steel, die blocks, shear knives, forgings, electric induction steel and alloy steels.

COLOR IN MOTORS—Use of a bright color on motor windings to show the presence of dirt is the subject of a bulletin by the Reliance Electric & Engineering Co., Cleveland. The color makes the presence of dirt apparent where a black coating would allow accumulations to be unnoticed. Needed cleaning thus is made more likely, adding to the life of the motors.

CAST IRON PIPE—United States Pipe & Foundry Co., Burlington, N. J., has issued a booklet, "Along Large Cast Iron Pipe Lines." Increased production and use of large diameter cast pipe for water and gas mains during 1929 and 1930 is stressed. The book is illustrated with scenes of large pipe installations at various stages. A list of cities and utilities which have large diameter cast iron pipe installations is given. The new 20-mile 48-inch water line, now being laid at Albany, N. Y., leads the many projects illustrated and described.

SUSPENSION BRIDGE—McClintic Marshall Co., Pittsburgh, has published a pictorial record of construction of the Ambassador bridge across the Detroit river at Detroit and Windsor, Ont. A description of the construction is included. A graphic idea of the method of constructing such a structure is given by this publication.

CRANES—Under its paraphrase of the Archimedean slogan, "Give us the runway and we will lift the world," Alliance Machine Co., Alliance, O., has issued a catalog of its line of cranes for a wide variety of purposes. The list of applications for its cranes and other industrial appliances for handling heavy materials covers car dumpers, charging box cars, coal-handling and ore-handling equipment, forging manipulators, coke pushers and levelers, steam drop hammers, shears and other devices, in addition to cranes. Illustrations include halftones of cranes and diagrams showing details. Actual installations are also pictured.

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Steam Drop Forge Hammers
Coke Pushers, Levelers and Door Lifters
Coal Pier Equipment
Rolling Mill Machinery
Cement Plant Machinery
Dock Handling Equipment
Coke Oven Equipment

248 of 100 Tons Capacity and over

LADLE AND STANDARD CRANES

58		100 tons
2	WORM DRIVEN Ladle,	100 tons
2		115 tons
5	WORM DRIVEN Ladle,	125 tons
44		125 tons
27		150 tons
2	WORM DRIVEN Ladle,	150 tons
3	WORM DRIVEN Ladle,	160 tons
2	WORM DRIVEN Ladle,	165 tons
3	WORM DRIVEN Ladle,	175 tons
27		175 tons
3	WORM DRIVEN Ladle,	200 tons
2		200 tons
1		225 tons
1		250 tons
3	WORM DRIVEN Ladle,	250 tons
1		275 tons
3		430 tons

STRIPPING CRANES

8		100 tons
1		125 tons
21		150 tons
17		200 tons
1	Single Ram,	320 tons

COMBINATION CHARGERS AND STRIPPERS

8		100 tons
1		125 tons
8		150 tons
4		200 tons

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